STATION	
TAIL NO.	
DATE	



BOEING CARD NO. 72-401-01-1

AIRLINE CARD NO.

4000

SKILL WORK AREA RELATED TASK INTERVAL MPD TASK CARD PHASE REVISION REV 00500 HRS 016 DEC 22/08 ENGIN | ENGINE 1 10101 APPLICABILITY
ANF ENGINE STRUCTURAL ILLUSTRATION REFERENCE AIRPLANE CHECK/INSP **ENGINE 1 FAN ROTOR BLADES**

ZONES ACCESS PANELS

411

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN ROTOR BLADES.

N72-31-02-6A

ALL

 1. <u>1st-Stage Fan Blade Airfoil Inspection of Surface Damage and Cracks</u> (Fig. 601)

A. General

(1) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.

B. Equipment

- (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
- (2) Light source
- (3) Mirror
- (4) Gloves or a lint free cloth

C. Access

- (1) Location Zones
 - 411 Left Engine
 - 422 Right Engine
- D. Examine the Fan Blade Airfoil for Surface Damage and Cracks (Fig. 602).
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CHECK/INSP ENGINE 1 FAN ROTOR BLADES

N72-31-02-6A 72-401-01-1 PAGE 1 OF 21 DEC 22/07

AIRLINE CARD NO.



MECH INSP

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU WARNING: HANDLE THE BLADES.

USE CAUTION WITH ANY ELECTRICAL EQUIPMENT USED NEAR THE BLADES. CAUTION: IF ANY ELECTRICAL SOURCE TOUCHES THE BLADE, CURRENT MAY PASS THROUGH TO THE BLADE AND CAUSE AN ARC BURN. THIS COULD RESULT IN A DECREASE IN THE MATERIAL STRENGTH OF THE BLADE. COULD ALSO CAUSE CRACKS TO APPEAR IN THE BLADE.

- (3) Use the equipment as follows to help find damage.
 - (a) Use a strong light and mirror.
 - Lightly rub the blade edge with gloves or a cloth (Which will catch on lifted material) to help find damage.
 - Use your fingernails and fingertips to help find the size and condition of the damage.

EXAMPLE: Your fingernails can help you find if the damage has a sharp or rounded bottom.

- (4) Examine the tip (Area A) of the blade.
 - (a) Examine the tip for tears, which are not permitted.
 - Examine the tip for nicks, dents and other damage.
 - Blade tip color change (for example, a light blue color) is permitted.

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN ROTOR BLADES

N72-31-02-6A

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AIRLINE CARD NO.

			TASK CARD
MECH	INSP		
		<u>CAUTION</u> :	VERY CAREFULLY EXAMINE ALL DAMAGE TO THE LEADING AND TRAILING EDGES THAT IS IN THE AREA BETWEEN THE PART SPAN SHROUD AND THE PLATFORM. NICKS IN THE LEADING AND TRAILING EDGE BECOME MORE IMPORTANT THE CLOSER THEY ARE TO THE ROOT OF THE BLADE.
			mine the leading and trailing edges and airfoil surfaces for cs, dents and other damage.
		(a)	Examine the leading and trailing edges and airfoil surfaces for local damage such as lifted edges or compressed material.
		(b)	You must repair areas of lifted edges and compressed material which have small radii or rough edges (AMM 72-31-02/801).
			NOTE: Use your fingernail to help identify a local, sharp nick or dent.
		(c)	It is permitted for blades with erosion to continue in service.
			NOTE: Erosion is where a layer of the surface is gone. Signs of erosion are many, very small dents that feel like sand paper. Erosion limits are given at shop overhaul.
		(d)	Do not blend blades that have damage which is more than the limits in Table 601.
			 Keep the fan blades that were removed for possible subsequent repair, as specified by an approved repair source.

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TASK CARD

MECH INSP

Table 601 Airfoil Damage Limits

•		ge =	
EXAMINE THESE	MAXIMUN	1 DEPTH OF DAMAGE	ON THE AIRFOIL
AIRFOIL AREAS	PERMITTED WITHOUT REPAIRS	PERMITTED AFTER REPAIRS	PERMITTED FOR 50 HOURS OF SERVICE AFTER REPAIRS
Area A The Tip	0.020 inch (0.508 mm)	0.750 inch (19.050 mm)	1.000 inch (25.400 mm)
Area B Shroud to Airfoil Radius	No Damage is Permitted	No Damage is Permitted	No Damage is Permitted
Area C Leading and Trailing Edges	0.005 inch (0.127 mm)	0.250 inch (6.350 mm)	0.300 inch (7.629 mm)
Area D Platform to Airfoil Radius	No Damage is Permitted	No Damage is Permitted	No Damage is Permitted
Leading and Trailing Edges	0.005 inch (0.127 mm)	0.150 inch (3.810 mm)	None (See Permitted After Repairs)
Area E Other Surfaces	0.020 inch (0.508 mm)	0.030 inch (0.762 mm)	0.060 inch (1.524 mm)
Area F Other Surfaces	0.005 inch (0.127 mm)	0.250 inch (6.350 mm) See *[1]	0.300 inch (7.629 mm) See *[1]

- *[1] This limit may be found to be 0.500 inch (12.7 mm) maximum in the CRI Manual. The higher limit is allowed for necessary bead peen and ECI at overhaul facility.
 - (6) Examine the airfoil for arc burn.

<u>NOTE</u>: Signs of arc burn are small circular or semicircular heat damaged areas on the blade surface that can have very small rounded dents, cracks, burned or melted areas.

EFFECTIVITY

CHECK/INSP ENGINE 1 FAN ROTOR BLADES

N72-31-02-6A

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AIRLINE CARD NO.

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MECH INSP

- (a) Arc burn is not permitted.
- (7) Examine the airfoil for cracks.
 - (a) You must repair all cracks (AMM 72-31-02/801).
- (8) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.
- 2. <u>1st-Stage Fan Blade Part Span Shroud Inspection for Damage</u> (Fig. 603)
 - A. General
 - (1) The part span shrouds will be called the shrouds in this task.
 - (2) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.
 - B. Equipment
 - (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
 - C. Access
 - (1) Location Zones

411 Left Engine

422 Right Engine

- D. Procedure
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN ROTOR BLADES

N72-31-02-6A

72-401-01-1 PAGE 5 OF 21 DEC 22/05

AIRLINE CARD NO.

SAS BOEING TASK CARD

MECH INSP CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL. (2) Put the protective mat on the inner surface of the inlet cowl. WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS. (3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location. (4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there. (a) A fan blade with a shroud that is broken, fractured, has cracks, or is not there is not permitted. (b) If you find a shroud(s) that has cracks do the steps that follow: Examine the shrouds of all the fan blades for cracks. Carefully examine the shroud radius (Area C) that is on the concave side of the airfoil. NOTE: It is very important to examine the side of Area C that is nearest to the root of the blade. 2) Remove the damaged fan blade(s), the blades that are on each side of it, and the matched moment blade of each removed blade. For each fan blade that has a shroud(s) that has NOTE: cracks, you must remove six fan blades. If you find a shroud(s) that is broken (fractured) or not there do the steps that follow: Remove and replace the damaged blade and two adjacent blades along with their three moment weighed pairs. Report the serial numbers of the adjacent blades. **EFFECTIVITY** CHECK/INSP

AIRLINE CARD NO.

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			2)	_ubricate the shrouds and dispatch the aircraf	t.
				Obey a 25 hour flyback limit until you do a ND of all concave shrouds per PW4ENG 72-478.	I inspection
				NDI reinspect all concave shrouds per SB PW4EN within 40 cycle.	G 72-478
				Visually inspect at every 1/2 A-check (lubrica interval).	tion
			ļ	NOTE: This applies to the pre SB PW4ENG 72-530 rotors only. Inspect all phase III and PW4ENG 72-536 fan rotors at every A-che	post SB
			6)	NDI reinspect at next C-check.	
			7)	NDI reinspect at all overhauls.	
				Notify P&W of any cracked fan blades found reported time Total time Total cycles Part number and change letter Part serial number and heat code Engine serial number Cycles since last inspection.	orting:
		(5) E	xamine A	rea A (shroud contact edge) for damage.	
		(a) No d	amage or blends are permitted in Area A.	
				rea B (hardface surface of the shroud) for craddamage on the hardface.	cks, worn
		(rear	the rotor stopped and not held, manually push ward in the blade slot at the 12 o'clock posit adjacent blade forward.	
			<u>NOTE</u>	: You can hit the thick part of the shroud wi or with a soft rubber mallet to release the	
		(b) Exam	ine the shrouds for worn areas on the mating s	urfaces.

EFFECTIVITY

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			 If there are areas where the hardface is worn through, do not use the fan blade.
			NOTE: If the hardface is worn through, the operation of the engine can distort and peen the titanium shroud.
			(c) Erosion, mismatch or coverage that is not complete on the shroud hardface surface is permitted if it meets the conditions below (Fig. 604).
			 A maximimum of 0.060 inch (1.524 mm) is permitted on one edge and on one side of the shroud only.
			2) The surface must be well rounded with no sharp edges.
			3) The depth must not be more than 0.020 inch (0.508 mm).
			(d) Chips in the hardface surface which are larger than 0.060 inch (1.524 mm) are not permitted.
			(e) If you think there is a crack, do a fluorescent penetrant inspection.
			1) Cracks are not permitted.
		(7)	Examine Area C (shroud radius) for damage (Fig. 604).
			(a) Repair all damage that is not more than the repair limits (AMM 72-31-02/801).
			1) The repairs must not go below the airfoil surface.
			(b) Sharp edges are not permitted (AMM 72-31-02/801).
			(c) If the damage is more than the blend limits, do not use the fan blade.
		(8)	Examine Area D (fillet radius) for damage (Fig. 603).
			(a) Isolated damage with rounded bottoms that is less than 0.005 inch (0.127 mm) in depth is serviceable.
			(b) No other damage is permitted.
		(9)	Examine Area E (shroud upper and lower surfaces) for damage (Fig. 603).

EFFECTIVITY

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TASK CARD

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				(a) No damage is permitted.
				(b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).
				1) The maximum depth of a blend is 0.010 inch (0.254 mm).
				(c) Fan blades that have shrouds that are broken, have cracks or are not there, are not permitted.
			(10)	Examine Area F (shroud edges) for damage (Fig. 603).
				(a) No damage is permitted.
				(b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).
				1) The maximum blend depth is 0.060 inch (1.524 mm).
			(11)	Turn the rotor to put the adjacent two blades at the 12 o'clock position.
			(12)	Do this inspection procedure again until you examine all the fan blades.
			(13)	If you are done with the fan blade inspections, do the steps that follow:
				(a) Remove the protective mat from the inlet cowl.
				(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.
	3	. <u>1st</u>	-Stag	e Fan Blade Airfoil Inspection for Bends and Curl (Fig. 605)
		Α.	Gene	ral
			(1)	This inspection is done when you think there is foreign object damage (FOD).
		В.	Equi	pment
l			(1)	Protective mat - Rubber Manufacturer's

Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning

streamers attached (3 required).

AIRLINE CARD NO.

				TASK CARD				
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		C.	Access					
		٠.						
			(1) Loca	ation Zones 411 Left Engine				
				422 Right Engine				
		D.	Procedure	e (Fig. 605)				
			(1) Attach the DO-NOT-OPERATE tag to the ENG START switch wh on the overhead P5.					
			<u>CAUTION</u> :	MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.				
			(2) Put	the protective mat on the inner surface of the inlet cowl.				
			WARNING:	TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.				
			(3) Exam	nine the tip of the blade for bends and curl.				
			NOTE	: A curl is a small bend.				
			(a)	Tip curl is permitted as follows:				
				1) Index 1 must not be more than 0.200 inch (5.080 mm).				
				No more than three adjacent blades with tip curl are permitted.				
				No more than a total of five blades with tip curl are permitted.				
				4) Tip curl with cracks or tears is not permitted.				
			(b)	A blade with the conditions that follow can continue in service without repair for 50 hours.				
				1) Index 1 must not be more than 2.000 inches (50.800 mm).				
				2) Index R must not be more than 0.500 inch (12.700 mm).				

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TASK CARD

AIRLINE CARD NO.

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- (4) Examine the leading and trailing edges for bends.
- (5) If the bends are more than the limits, remove the fan blade and keep it for a possible subsequent repair.
- (6) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.
- 4. <u>1st-Stage Fan Blade Platform Inspection for Damage</u> (Fig. 606)
 - A. General
 - (1) This inspection is done when you think there is foreign object damage (FOD).
 - B. Equipment
 - (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
 - C. Access
 - (1) Location Zones

411 Left Engine

422 Right Engine

- D. Procedure
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

<u>CAUTION</u>: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN ROTOR BLADES

N72-31-02-6A

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MECH INSP

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

- (3) Examine the platform surfaces for nicks, dents, and scratches (Fig. 606, and Table 602).
 - (a) Use 10X magnification.
 - (b) Repair the blades that have damage (AMM 72-31-02/801).

TABLE 602 PLATFORM INSPECTION LIMITS						
MAXIMUM DEPTH OF DAMAGE ON THE PLATFORM						
EXAMINE THESE AREAS	PERMITTED WITHOUT REPAIRS	PERMITTED IF REPAIRED				
Dimension 1 (For Reference)	0.300 Inch (7.620 mm) minimum					
Area A Platform Surface	0.005 Inch (0.127 mm)	0.020 inch (0.508 mm)				
Area B Root Face	0.005 Inch (0.127 mm)	0.040 inch (1.016 mm)				

- (4) Examine the platform for cracks.
 - (a) Remove fan blades that have cracks in the platform, because cracks are not permitted in the platform and you cannot repair cracks.
- (5) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

EFFECTIVITY	CHECK/INSP	ENGINE 1 FAN	ROTOR BLADES
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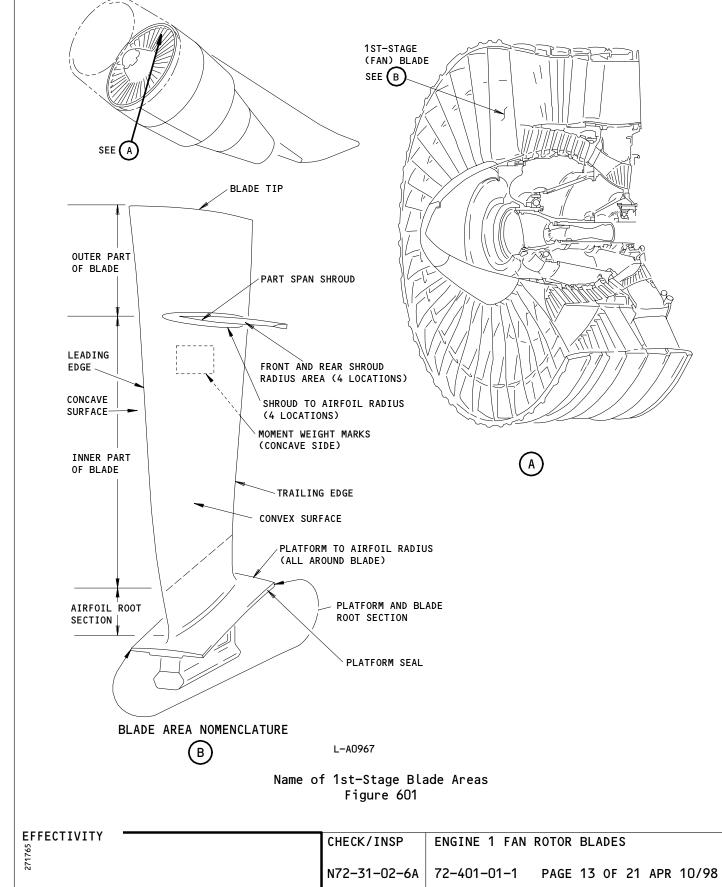
BOEING CARD NO.

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AIRLINE CARD NO.

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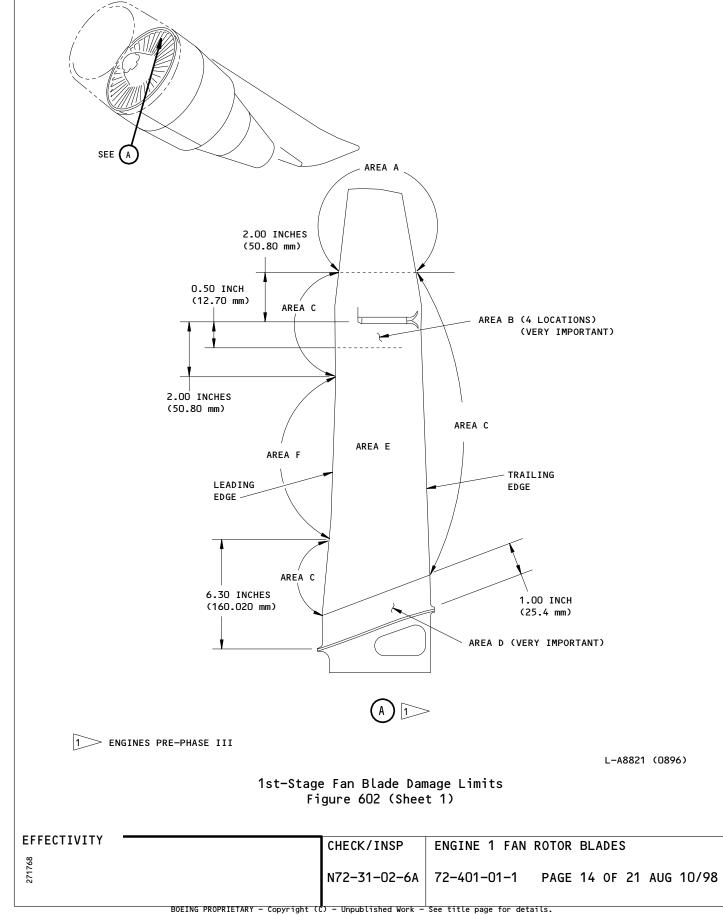




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BOEING 767 TASK CARD

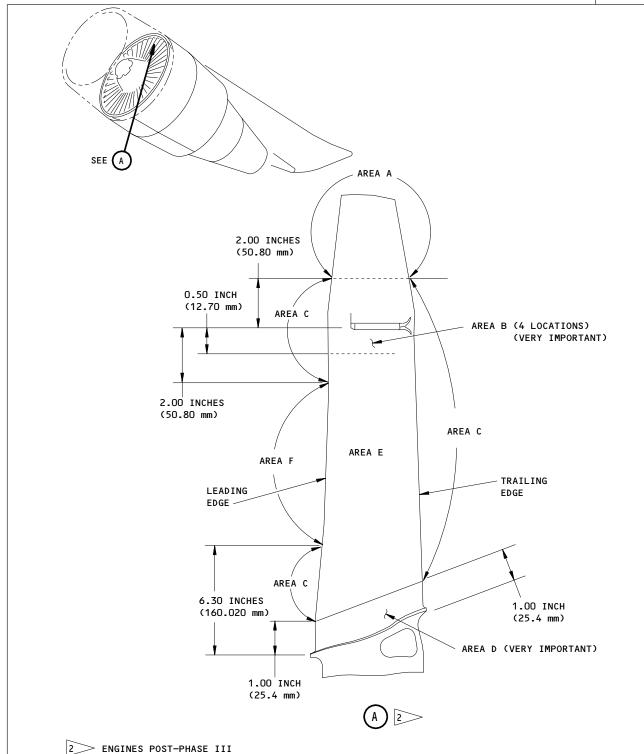


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AIRLINE CARD NO.

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1st-Stage Fan Blade Damage Limits
Figure 602 (Sheet 2)

CHECK/INSP ENGINE 1 FAN ROTOR BLADES

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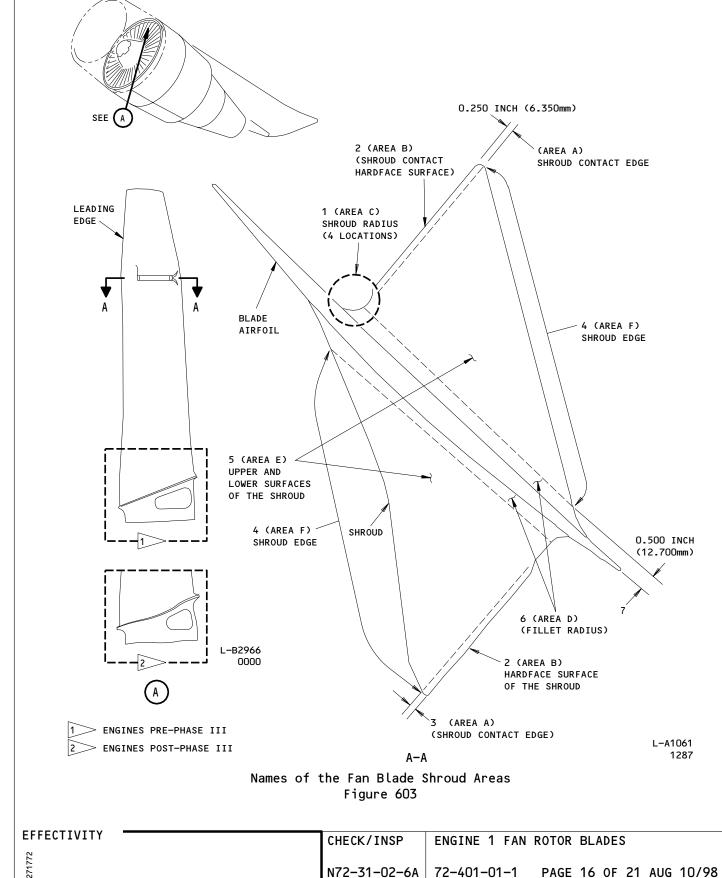
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SAS

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AIRLINE CARD NO.



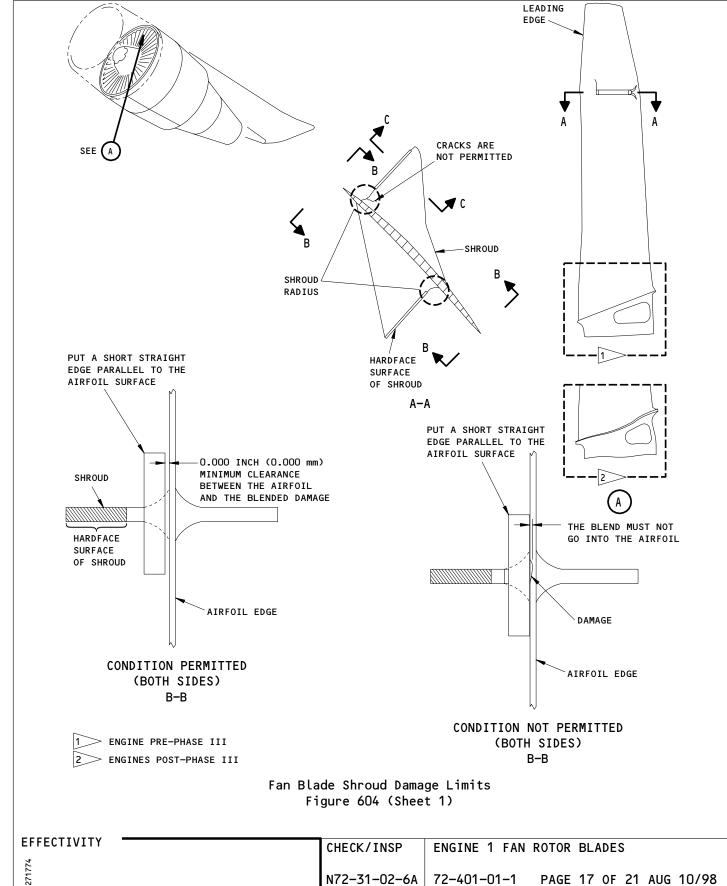
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AIRLINE CARD NO.

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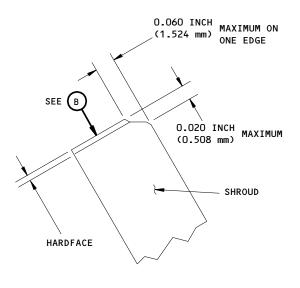
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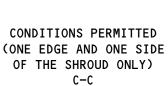


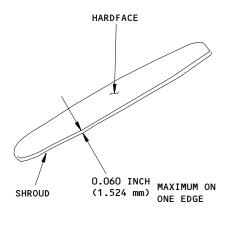
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Fan Blade Shroud Damage Limits Figure 604 (Sheet 2)

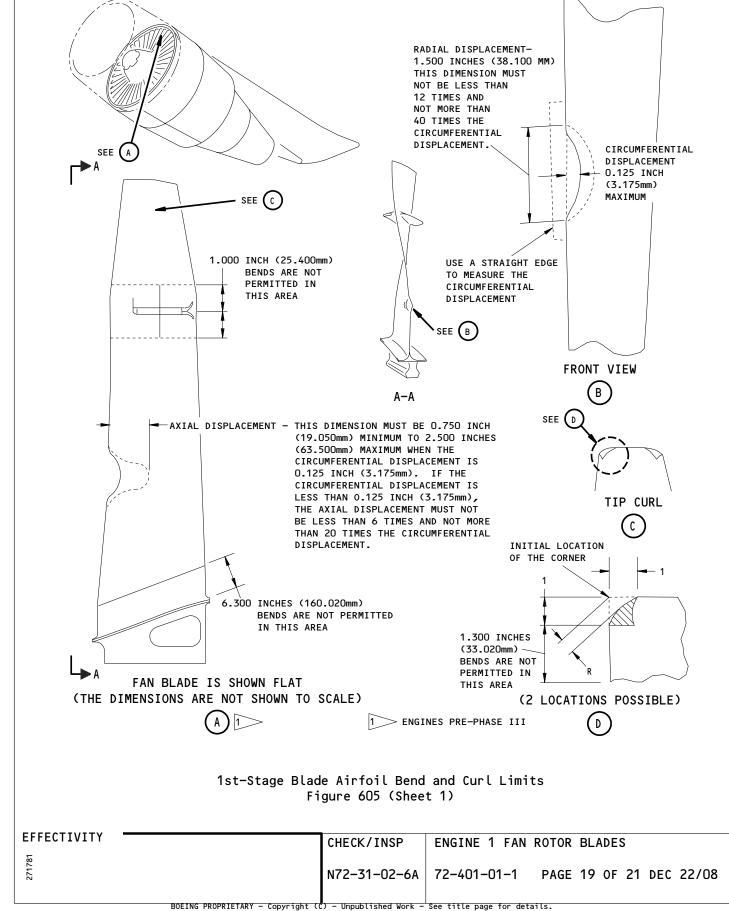
CHECK/INSP ENGINE 1 FAN ROTOR BLADES

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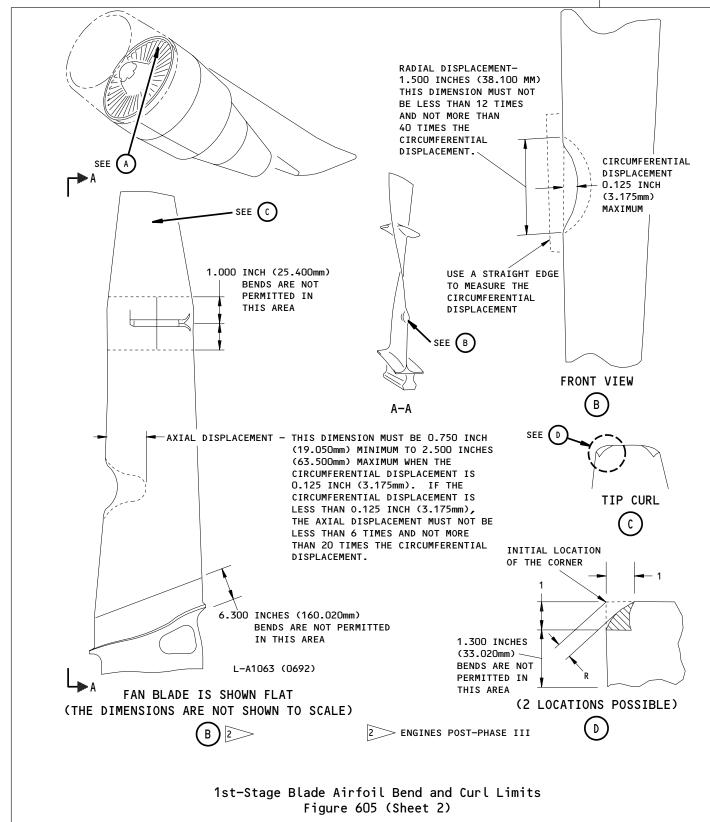


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AIRLINE CARD NO.



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ENGINE 1 FAN ROTOR BLADES

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EFFECTIVITY

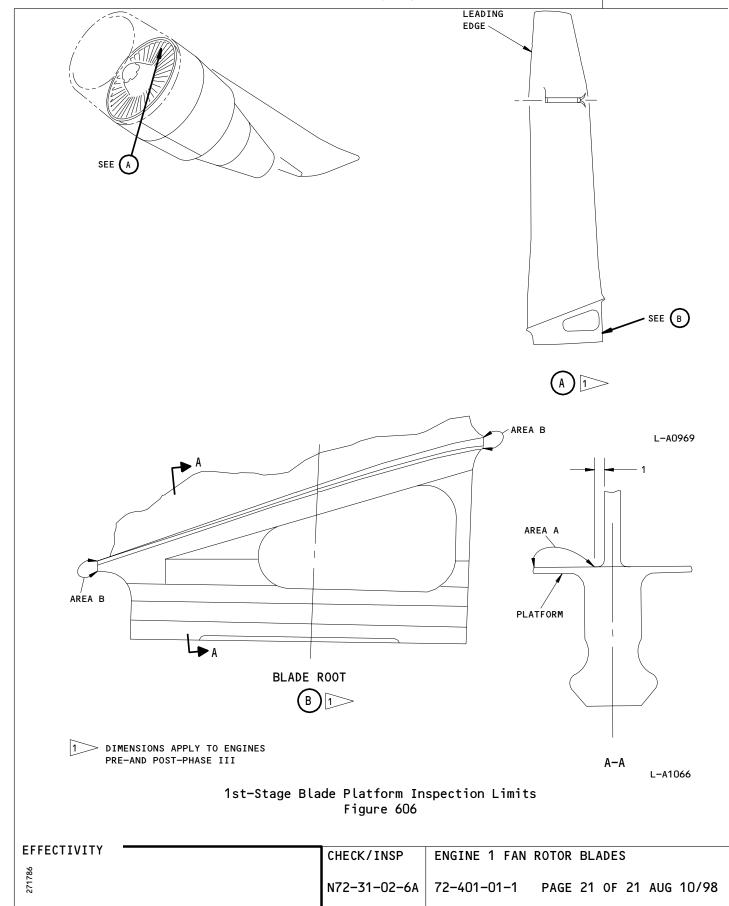
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AIRLINE CARD NO.

SAS

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TASK CARD



STATION	
TAIL NO.	
DATE	



BOEING CARD NO. 72-401-01-2

AIRLINE CARD NO.

DATE		_							
				TASK CARD					
SKILL	SKILL WORK AREA RE		ELATED TASK	INTERVAL		PHASE	MPD REV	1	SK CARD VISION
ENGIN	ENGINE	2 00500 HRS 1			10101	016	DEC	22/08	
TAS	K		TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE	AF	PLICABI	LITY
							AIRPLANE		ENGINE
CHECK/INSP		ENGINE 2	FAN ROTOR	AN ROTOR BLADES			ALL	_	4000
	ZONES				ACCESS PANELS				
421									

MECH INSP

VISUALLY CHECK THE ENGINE 2 FAN ROTOR BLADES.

N72-31-02-6A

MPD ITEM NUMBER

 1. <u>1st-Stage Fan Blade Airfoil Inspection of Surface Damage and Cracks</u> (Fig. 601)

A. General

(1) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.

B. Equipment

- (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
- (2) Light source
- (3) Mirror
- (4) Gloves or a lint free cloth

C. Access

- (1) Location Zones
 - 411 Left Engine
 - 422 Right Engine
- D. Examine the Fan Blade Airfoil for Surface Damage and Cracks (Fig. 602).
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

EFFECTIVITY	CHECK/INSP	ENGINE 2 FAN	ROTOR	BLADES
	N72-31-02-6A	72-401-01-2	PAGE	1 OF 21 DEC 22/07

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SAS BOEING
767
TASK CARD

MECH INSP

<u>CAUTION</u>: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

CAUTION: USE CAUTION WITH ANY ELECTRICAL EQUIPMENT USED NEAR THE BLADES. IF ANY ELECTRICAL SOURCE TOUCHES THE BLADE, CURRENT MAY PASS THROUGH TO THE BLADE AND CAUSE AN ARC BURN. THIS COULD RESULT IN A DECREASE IN THE MATERIAL STRENGTH OF THE BLADE. THIS COULD ALSO CAUSE CRACKS TO APPEAR IN THE BLADE.

- (3) Use the equipment as follows to help find damage.
 - (a) Use a strong light and mirror.
 - (b) Lightly rub the blade edge with gloves or a cloth (Which will catch on lifted material) to help find damage.
 - (c) Use your fingernails and fingertips to help find the size and condition of the damage.

EXAMPLE: Your fingernails can help you find if the damage has a sharp or rounded bottom.

- (4) Examine the tip (Area A) of the blade.
 - (a) Examine the tip for tears, which are not permitted.
 - (b) Examine the tip for nicks, dents and other damage.
 - (c) Blade tip color change (for example, a light blue color) is permitted.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN ROTOR BLADES

N72-31-02-6A

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AIRLINE CARD NO.

SAS FOEING
767
TASK CARD

MECH INSP

CAUTION: VERY CAREFULLY EXAMINE ALL DAMAGE TO THE LEADING AND TRAILING EDGES THAT IS IN THE AREA BETWEEN THE PART SPAN SHROUD AND THE PLATFORM. NICKS IN THE LEADING AND TRAILING EDGE BECOME MORE IMPORTANT THE CLOSER THEY ARE TO THE ROOT OF THE BLADE.

- (5) Examine the leading and trailing edges and airfoil surfaces for nicks, dents and other damage.
 - (a) Examine the leading and trailing edges and airfoil surfaces for local damage such as lifted edges or compressed material.
 - (b) You must repair areas of lifted edges and compressed material which have small radii or rough edges (AMM 72-31-02/801).

NOTE: Use your fingernail to help identify a local, sharp nick or dent.

(c) It is permitted for blades with erosion to continue in service.

NOTE: Erosion is where a layer of the surface is gone. Signs of erosion are many, very small dents that feel like sand paper. Erosion limits are given at shop overhaul.

- (d) Do not blend blades that have damage which is more than the limits in Table 601.
 - Keep the fan blades that were removed for possible subsequent repair, as specified by an approved repair source.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN ROTOR BLADES

N72-31-02-6A

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AIRLINE CARD NO.

EXAMINE THESE AIRFOIL

AREAS

Airfoil Radius

Leading and Trailing Edges

Platform to

Leading and

Airfoil Radius

Trailing Edges

Other Surfaces

Other Surfaces

Area A The Tip

Area B Shroud to

Area C

Area D

Area E

Area F



Table 601

0.250 inch

(6.350 mm)

No Damage is

Permitted

0.150 inch

(3.810 mm)

0.030 inch

(0.762 mm)

0.250 inch

(6.350 mm)

See *[1]

MECH INSP

Airfoil Damage Limits					
MAXIMUM DEPTH OF DAMAGE ON THE AIRFOIL					
PERMITTED	PERMITTED	PERMITTED FOR 50 HOURS			
WITHOUT REPAIRS	AFTER REPAIRS	OF SERVICE AFTER REPAIRS			
0.020 inch	0.750 inch	1.000 inch			
(0.508 mm)	(19.050 mm)	(25.400 mm)			
No Damage is	No Damage is	No Damage is			
Permitted	Permitted	Permitted			

0.300 inch

(7.629 mm)

No Damage is

None (See

Permitted After Repairs)

0.060 inch

(1.524 mm)

0.300 inch

(7.629 mm)

See *[1]

Permitted

This limit may be found to be 0.500 inch (12.7 mm) maximum in the CRI *[1] Manual. The higher limit is allowed for necessary bead peen and ECI at overhaul facility.

(6) Examine the airfoil for arc burn.

0.005 inch

(0.127 mm)

No Damage is

Permitted

0.005 inch

(0.127 mm)

0.020 inch

(0.508 mm)

0.005 inch

(0.127 mm)

Signs of arc burn are small circular or semicircular heat NOTE: damaged areas on the blade surface that can have very small rounded dents, cracks, burned or melted areas.

EFFECTIVITY

CHECK/INSP ENGINE 2 FAN ROTOR BLADES

N72-31-02-6A

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MECH INSP

- (a) Arc burn is not permitted.
- (7) Examine the airfoil for cracks.
 - (a) You must repair all cracks (AMM 72-31-02/801).
- (8) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.
- 2. <u>1st-Stage Fan Blade Part Span Shroud Inspection for Damage</u> (Fig. 603)
 - A. General
 - (1) The part span shrouds will be called the shrouds in this task.
 - (2) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.
 - B. Equipment
 - (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
 - C. Access
 - (1) Location Zones

411 Left Engine

422 Right Engine

- D. Procedure
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN ROTOR BLADES

N72-31-02-6A

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AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

- (3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.
- (4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.
 - (a) A fan blade with a shroud that is broken, fractured, has cracks, or is not there is not permitted.
 - (b) If you find a shroud(s) that has cracks do the steps that
 follow:
 - 1) Examine the shrouds of all the fan blades for cracks.
 - a) Carefully examine the shroud radius (Area C) that is on the concave side of the airfoil.

NOTE: It is very important to examine the side of Area C that is nearest to the root of the blade.

 Remove the damaged fan blade(s), the blades that are on each side of it, and the matched moment blade of each removed blade.

NOTE: For each fan blade that has a shroud(s) that has cracks, you must remove six fan blades.

- (c) If you find a shroud(s) that is broken (fractured) or not there do the steps that follow:
 - Remove and replace the damaged blade and two adjacent blades along with their three moment weighed pairs. Report the serial numbers of the adjacent blades.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN ROTOR BLADES

N72-31-02-6A

72-401-01-2 PAGE 6 OF 21 DEC 22/05

AIRLINE CARD NO.

				TASK CARD	
MECH	INSP				
			2)	Lubricate the shrouds and dispatch the aircraf	t.
			3)	Obey a 25 hour flyback limit until you do a ND of all concave shrouds per PW4ENG 72–478.	I inspection
			4)	NDI reinspect all concave shrouds per SB PW4EN within 40 cycle.	G 72-478
			5)	Visually inspect at every 1/2 A-check (lubrica interval).	tion
				NOTE: This applies to the pre SB PW4ENG 72-53 rotors only. Inspect all phase III and PW4ENG 72-536 fan rotors at every A-che	post SB
			6)	NDI reinspect at next C-check.	
			7)	NDI reinspect at all overhauls.	
			8)	Notify P&W of any cracked fan blades found rep - Total time - Total cycles - Part number and change letter	orting:
				- Part serial number and heat code - Engine serial number	
				- Cycles since last inspection.	
		(5)	Examine A	rea A (shroud contact edge) for damage.	
			(a) No c	amage or blends are permitted in Area A.	
			Examine Area B (hardface surface of the shroud) for cracks, worn areas or damage on the hardface.		
			rear	the rotor stopped and not held, manually push ward in the blade slot at the 12 o'clock posit adjacent blade forward.	
			<u>NOTE</u>	: You can hit the thick part of the shroud wi or with a soft rubber mallet to release the	•
			(b) Exam	ine the shrouds for worn areas on the mating s	urfaces.

6 5

9

EFFECTIVITY

TASK CARD

AIRLINE CARD NO.

				THERE STILLS
MECH	INSP			
				 If there are areas where the hardface is worn through, do not use the fan blade.
				NOTE: If the hardface is worn through, the operation of the engine can distort and peen the titanium shroud.
			(c)	Erosion, mismatch or coverage that is not complete on the shroud hardface surface is permitted if it meets the conditions below (Fig. 604).
				 A maximimum of 0.060 inch (1.524 mm) is permitted on one edge and on one side of the shroud only.
				2) The surface must be well rounded with no sharp edges.
				3) The depth must not be more than 0.020 inch (0.508 mm).
			(d)	Chips in the hardface surface which are larger than 0.060 inch (1.524 mm) are not permitted.
			(e)	If you think there is a crack, do a fluorescent penetrant inspection.
				1) Cracks are not permitted.
		(7)	Exami	ine Area C (shroud radius) for damage (Fig. 604).
			(a)	Repair all damage that is not more than the repair limits (AMM $72-31-02/801$).
				1) The repairs must not go below the airfoil surface.
			(b)	Sharp edges are not permitted (AMM 72-31-02/801).
			(c)	If the damage is more than the blend limits, do not use the fan blade.
		(8)	Exami	ine Area D (fillet radius) for damage (Fig. 603).
			(a)	Isolated damage with rounded bottoms that is less than 0.005 inch (0.127 mm) in depth is serviceable.
			(b)	No other damage is permitted.
		(9)		ine Area E (shroud upper and lower surfaces) for damage . 603).
EFF	ECTI	VITY		CHECK/INSP ENGINE 2 FAN ROTOR BLADES

12 401 01 2

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SAS FOEING
767
TASK CARD

MECH INSP

- (a) No damage is permitted.
- (b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).
 - 1) The maximum depth of a blend is 0.010 inch (0.254 mm).
- (c) Fan blades that have shrouds that are broken, have cracks or are not there, are not permitted.
- (10) Examine Area F (shroud edges) for damage (Fig. 603).
 - (a) No damage is permitted.
 - (b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).
 - 1) The maximum blend depth is 0.060 inch (1.524 mm).
- (11) Turn the rotor to put the adjacent two blades at the 12 o'clock position.
- (12) Do this inspection procedure again until you examine all the fan blades.
- (13) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.
- 1st-Stage Fan Blade Airfoil Inspection for Bends and Curl (Fig. 605)
 - A. General
 - (1) This inspection is done when you think there is foreign object damage (FOD).
 - B. Equipment
 - (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN ROTOR BLADES

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TASK CARD

MECH INSP

- C. Access
 - (1) Location Zones

411 Left Engine 422 Right Engine

- D. Procedure (Fig. 605)
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

(3) Examine the tip of the blade for bends and curl.

NOTE: A curl is a small bend.

- (a) Tip curl is permitted as follows:
 - Index 1 must not be more than 0.200 inch (5.080 mm).
 - 2) No more than three adjacent blades with tip curl are permitted.
 - No more than a total of five blades with tip curl are permitted.
 - 4) Tip curl with cracks or tears is not permitted.
- (b) A blade with the conditions that follow can continue in service without repair for 50 hours.
 - 1) Index 1 must not be more than 2.000 inches (50.800 mm).
 - 2) Index R must not be more than 0.500 inch (12.700 mm).

EFFECTIVITY

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ENGINE 2 FAN ROTOR BLADES

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- (4) Examine the leading and trailing edges for bends.
- (5) If the bends are more than the limits, remove the fan blade and keep it for a possible subsequent repair.
- (6) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.
- 4. <u>1st-Stage Fan Blade Platform Inspection for Damage</u> (Fig. 606)
 - A. General
 - (1) This inspection is done when you think there is foreign object damage (FOD).
 - B. Equipment
 - (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
 - C. Access
 - (1) Location Zones

411 Left Engine

422 Right Engine

- D. Procedure
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

<u>CAUTION</u>: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN ROTOR BLADES

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MECH INSP

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

- (3) Examine the platform surfaces for nicks, dents, and scratches (Fig. 606, and Table 602).
 - (a) Use 10X magnification.
 - (b) Repair the blades that have damage (AMM 72-31-02/801).

TABLE 602 PLATFORM INSPECTION LIMITS				
	MAXIMUM DEPTH OF DAMAGE ON THE PLATFORM			
EXAMINE THESE AREAS	PERMITTED WITHOUT REPAIRS	PERMITTED IF REPAIRED		
Dimension 1 (For Reference)	0.300 Inch (7.620 mm) minimum			
Area A Platform Surface	0.005 Inch (0.127 mm)	0.020 inch (0.508 mm)		
Area B Root Face	0.005 Inch (0.127 mm)	0.040 inch (1.016 mm)		

- (4) Examine the platform for cracks.
 - (a) Remove fan blades that have cracks in the platform, because cracks are not permitted in the platform and you cannot repair cracks.
- (5) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.
 - (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

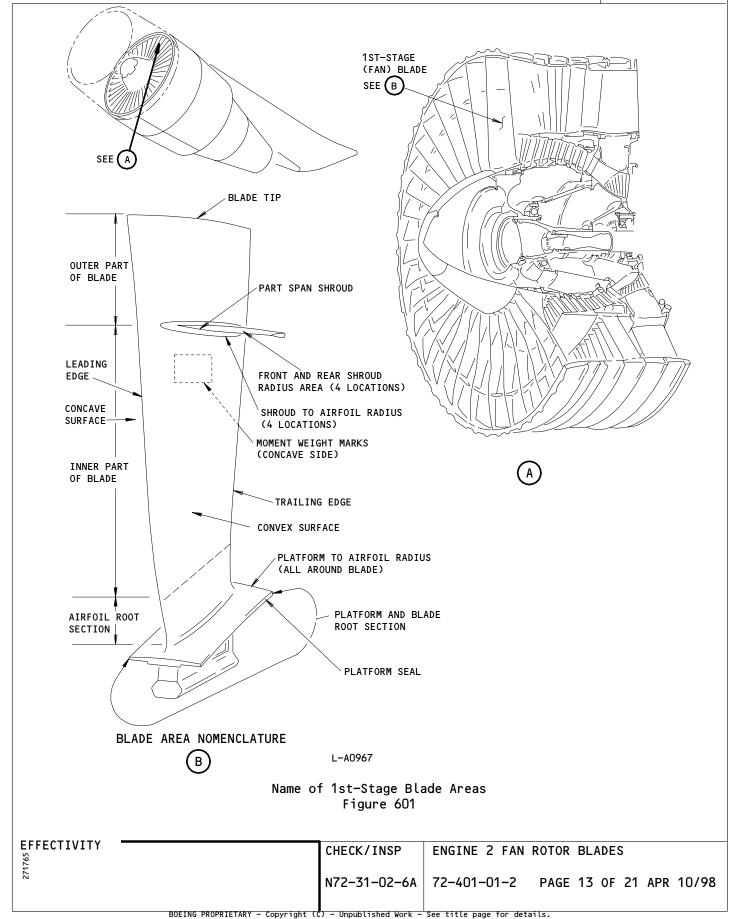
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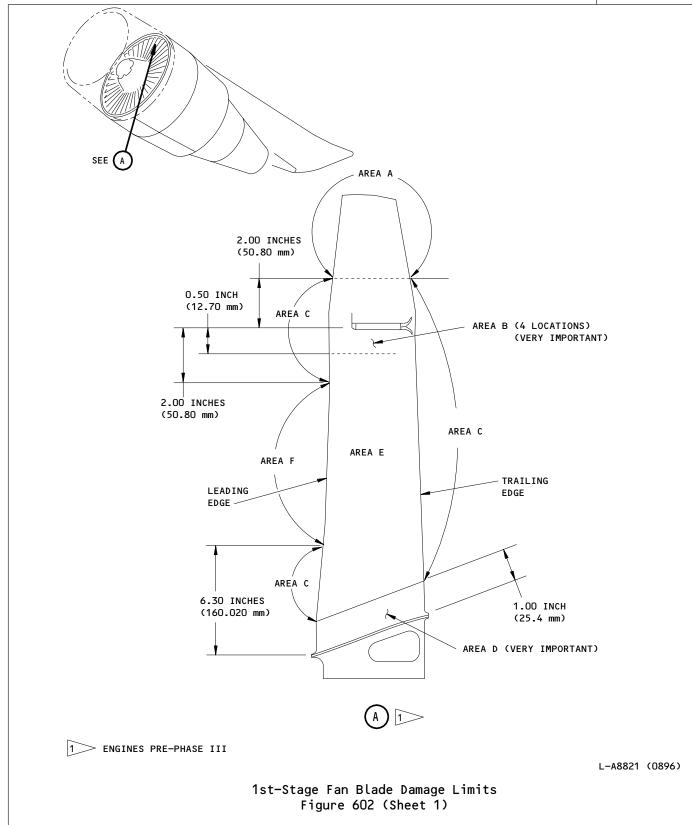




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CHECK/INSP ENGINE 2 FAN ROTOR BLADES

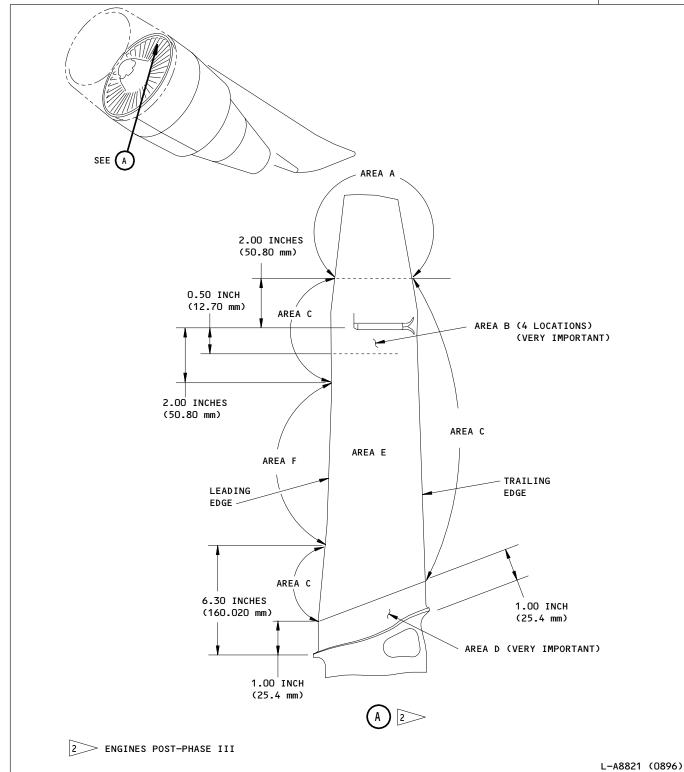
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1st-Stage Fan Blade Damage Limits Figure 602 (Sheet 2)

CHECK/INSP ENGINE 2 FAN ROTOR BLADES

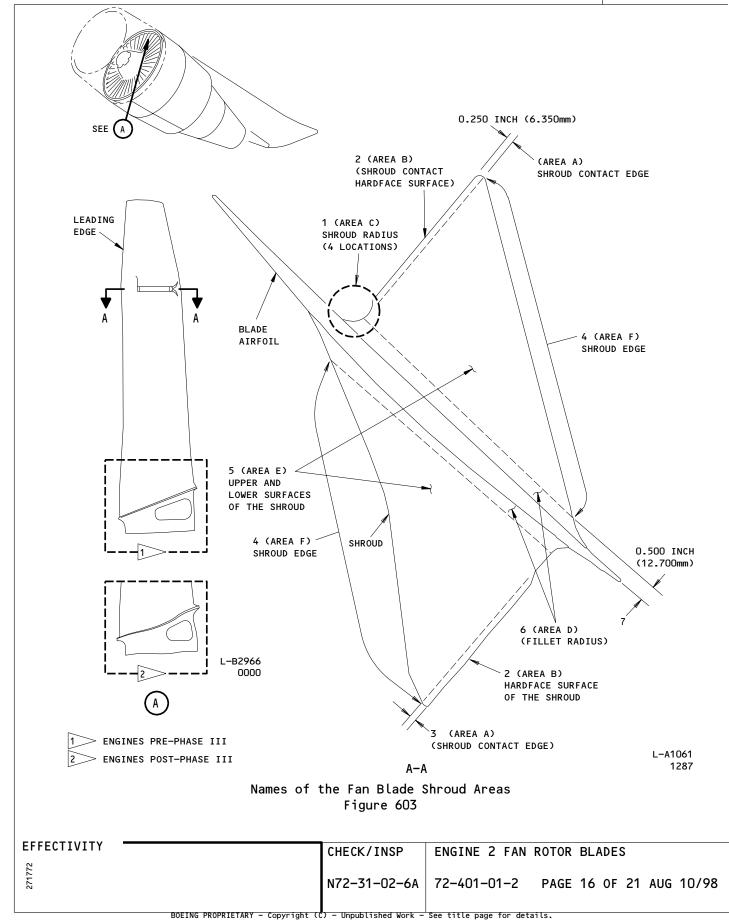
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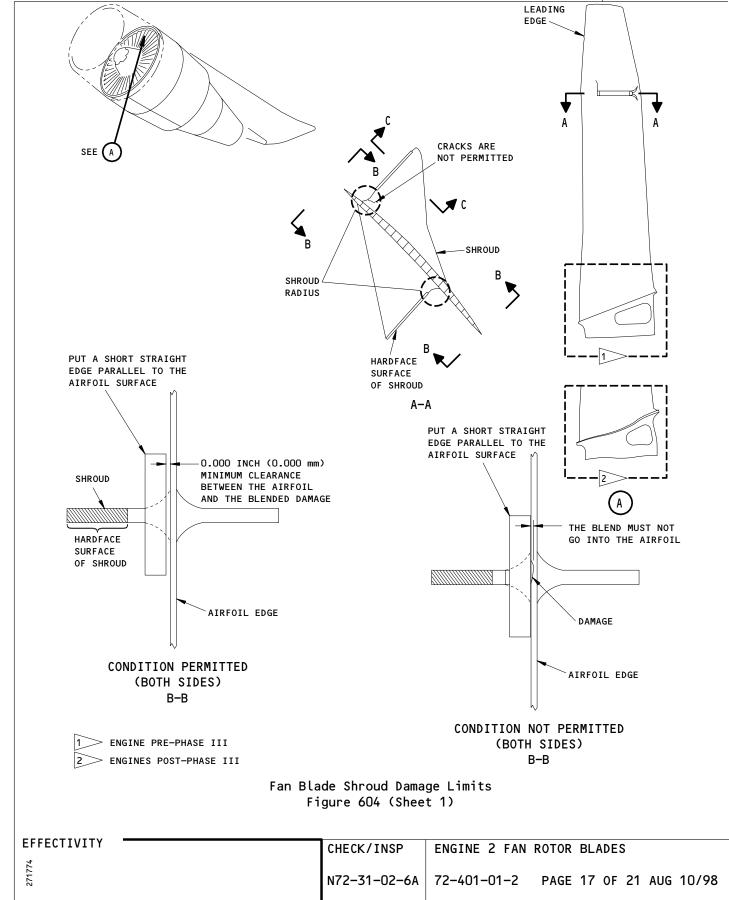


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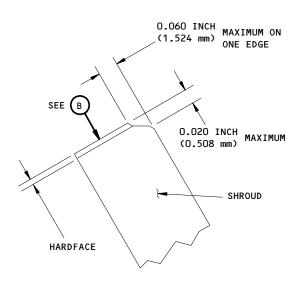
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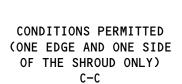
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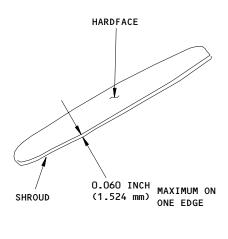
AIRLINE CARD NO.

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(B)

L-B2611 (0000) PWV

Fan Blade Shroud Damage Limits Figure 604 (Sheet 2)

CHECK/INSP ENGINE 2

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ENGINE 2 FAN ROTOR BLADES

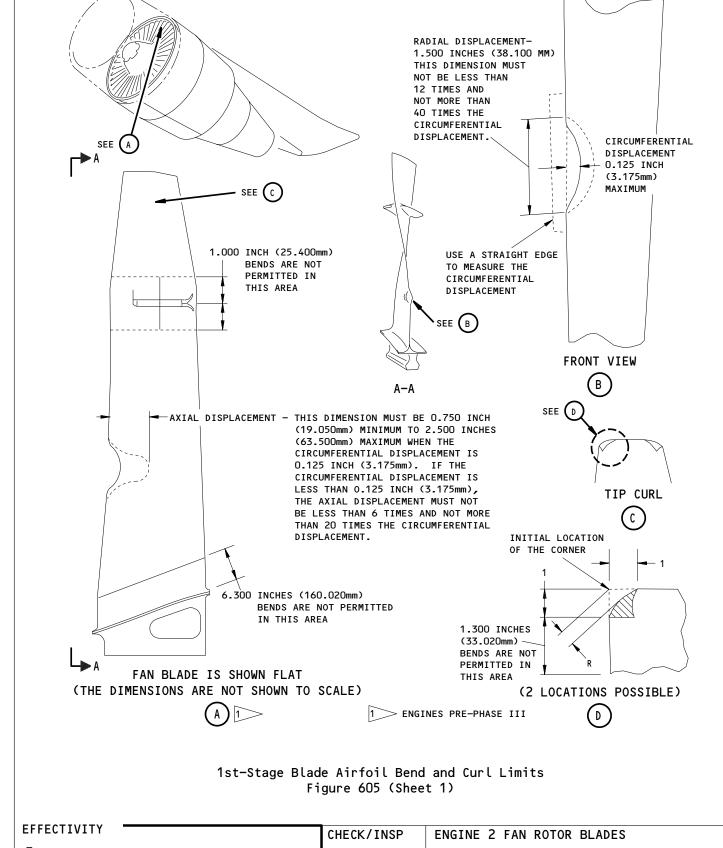
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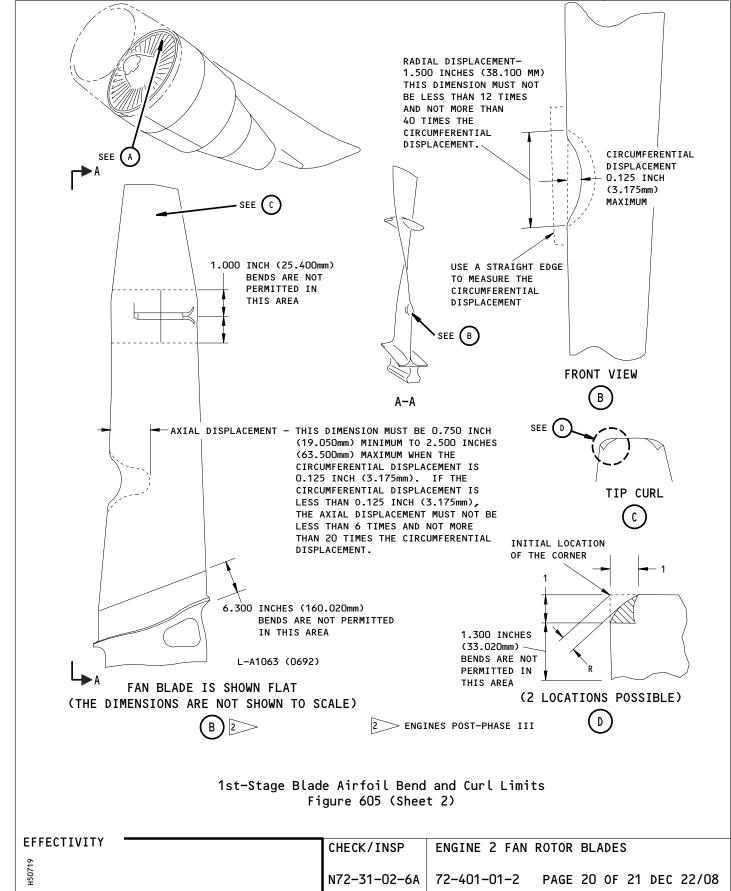
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AIRLINE CARD NO.

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BOEING 767 TASK CARD



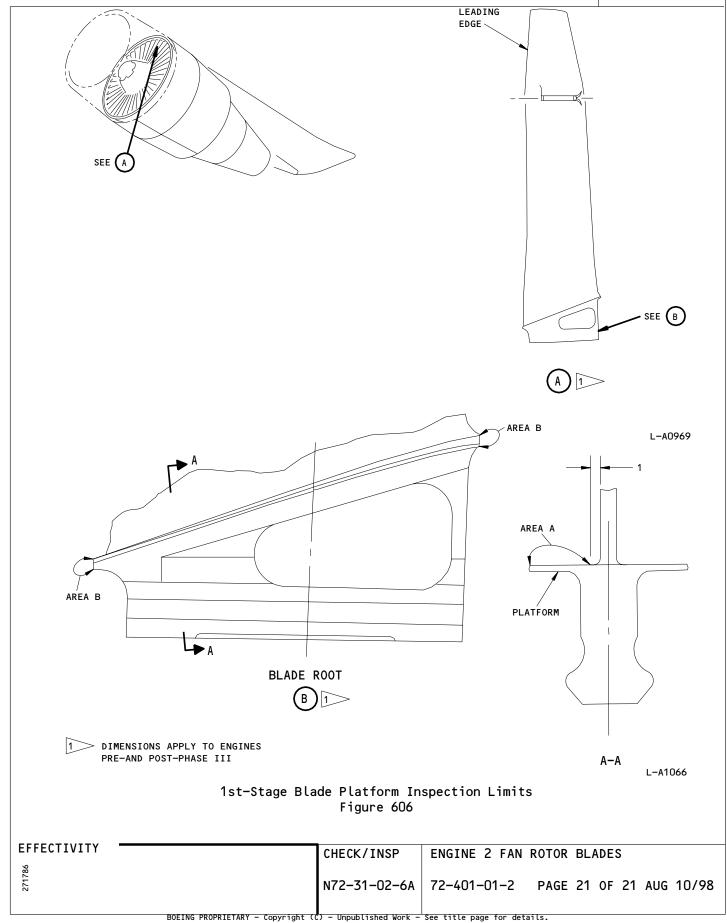
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AIRLINE CARD NO.

SAS





STATION
TAIL NO.
DATE



BOEING CARD NO. 72-402-01-1

AIRLINE CARD NO.

				TASK CARD					
SKILL	SKILL WORK AREA RE		ELATED TASK	INTERVAL		PHASE	MPD REV	1	SK CARD VISION
ENGIN	ENGINE	1		00500 HRS		10101	005	DEC	22/07
TAS	TASK		TITLE	TITLE STRUC		STRUCTURAL ILLUSTRATION REFERENCE		APPLICABILIT	
							AIRPLAN	ΙE	ENGINE
CHECK	CHECK/INSP E		PORTION OF	INLET CONE					
			_				ALL		4000
	ZONES				ACCESS PANELS				
411									

MECH INSP

MPD ITEM NUMBER

VISUALLY CHECK THE EXTERNAL SURFACES OF THE ENGINE 1 INLET CONE FOR CONDITION.

N72-31-01-6A

- 1. <u>Inlet Cone-Inspection/Check</u>
 - A. Equipment
 - (1) Protective mat Rubber Manufactures Association, Grade SC43 Neoprene Sponge 1 in. thick, approximately 5x6 ft with warning streamer attached (3 required)
 - B. Consumable Materials
 - (1) G01077, Emery paper (Aluminum oxide) 200-325 Grit - PWA P05-055
 - C. References
 - (1) AMM 72-31-01/401, Inlet Cone
 - D. Inspect The Inlet Cone (Fig. 601)
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the P5 overhead panel.

CAUTION: USE A PROTECTIVE MAT WHEN WORKING INSIDE THE INLET OR DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET CONE.

EFFECTIVITY

CHECK/INSP

EXTERNAL PORTION OF INLET CONE

N72-31-01-6A

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AIRLINE CARD NO.

SAS BOEING
767
TASK CARD

MECH INSP

(2) Position the protective mat in the lower ID of the inlet cone.

NOTE: Length to depth (L/D) ratio is equal to five noted differently. Limits apply to damaged area after blending and not to quantity of damage measured before blending.

- (3) Inspect the inlet cone for chipping, cracks and delamination caused by damage from a bird, ice, or other object.
 - (a) Inspect the exterior surface of the inlet cone. Look for any signs of chipping, cracks and delamination which are caused by foriegn object damage (FOD).
 - (b) Inspect the interior surface of the inlet cone for any visible signs of cracking or delamination. Impact damage to the outer surface of the cone segment which causes visible cracking or delamination of the inner surface indicates major structural damage. In this case, the cone segment must be removed from service (AMM 72-31-01/401).

NOTE: Inlet cones which have been subjected to damage which was caused by a bird, ice or by the use of impact tool are very susceptible to this type of damage.

- (4) Remove the protective mat from the inlet cowl.
- (5) The checks that follow are the Continue-In-Service Limits.
 - (a) The visual limits of the external cone surface FOD are as follows:
 - Minor paint chipping, dents or scratches which do not cause crazing with a primary path to inside surface of cone are permitted without restriction.
 - 2) After the initial inspection, if any indication of cracks on any surface location are found, and these cracks go through the composite material, remove the part.
 - a) The maximum crack length is 12.0 in. (304.8 mm) for each crack.
 - b) A maximum of 10 cracks are permitted for each inlet cone.

EFFECTIVITY

CHECK/INSP

EXTERNAL PORTION OF INLET CONE

N72-31-01-6A

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AIRLINE CARD NO.

			TASK CARD	
MECH	INSP	-	,	
			c) The cracks must be in the resin rich areas and mugo into the composite material. Find the correct depth by lightly sanding the surface with Emery P (P05-055).	t crack
			d) The cracks must not cause delamination.	
			e) The end of the crack must be at least 2.0 in. (50 away from the trailing edge.	(mm 8.
		(b)	The visible chipping and delamination limits of the exter cone surface are as follows:	'na l
			 No delamination or peeling is permitted on composite material surface. 	
			2) FOR ENGINES WITH PN 749629; Erosion or peeling of the black protective paint on to cone (front) segment is permitted up to 50% of the subarea, but the part must be replaced at the next sched maintenance action. If the area of erosion or peeling more than 50%, the cone (front) segment must be replayed within 50 hours maximum (AMM 72-31-01/401).	urface duled ng is
			3) FOR ENGINES WITH PN 51A681 AND 51A760; Erosion, peeling of flaking of the flouroelastomer con the cone (front) segment is not permitted except it bolt pocket corners. Replace the cone (front) segment within 50 hours if there is any erosion, peeling or for the flouroelastomer coating (AMM 72-31-01/401). Retained the flouroelastomer coating in bolt pocket corner if it is any erosion, peeling or flaking (AMM 72-31-01/801).	in the nt flaking Repair there
			<u>NOTE</u> : This is a temporary repair and the part must b replaced at the next scheduled maintenance int	
			4) For cone (rear) segment, erosion or peeling of the bl protective paint is permitted up to 10% of the surfact area, but the part must be replaced at the next sched maintenance action. If the area of erosion or peeling more than 10% of the surface area the cone (rear) segmust be replaced within 50 hours (AMM 72-31-01/401).	ce duled ng is
		(c)	The visable crack limits of the internal flange area are follows.	as

AIRLINE CARD NO.

			0710	TASK CARD					
MECH	INSP								
			1)	 Minor chipping, dents, scratches or discontinuo at resin rich areas in front flange or minor di crazing in resin rich areas at rear flange are without restriction. 					
				NOTE: The front and rear flange cannot be easi Therefore, if inlet cone is thought to h the front segment must be removed and the inlet cone inspected.	ave damage,				
		(6)	(6) Inlet cone rear segment seal damage limits are as follo						
			(a) Remove any portion of the seal that is loose, hang- protruding into the gaspath by trimming as close to cone external surface as possible.						
			mus	(b) Any amount of seal is permitted to be missing, but must be replaced at the next scheduled maintenance or at the next C Check.					
		(7)	The chec	The checks that follow are the Flyback Limits.					
			(a) Fly	back limits are for a maximum of 50 hours.					
			(b) The	 conditions that are permitted only for flyback Composite material delamination or peeling. Paint erosion or peeling. Indentations not more than 0.060 in. (1.524 depth or 1.500 in. (38.100 mm) in diameter. Local cracks which after inspection of the i the inlet cone are not longer than 0.500 in. are permitted for flyback limit only. 	mm) in				
			1)	Any through cracks, indentations or surface ply which is more than the flyback limits requires part, assembly, or engine be removed.					
				NOTE: The front segment of the inlet cone can if the through cracks are evident as lon secured to the rear segment.					
			2)	Crazing with a primary path (indicating a crack not exceed 0.500 in. (12.700 mm) in length is p					

6 7

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72-402-01-1

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		TASK CARD	
MECH	INSP		
		3) Any crack that ends less than 2.0 in. (50.0 mm) away fro the traling edge is permitted for the flybacklimit only.	
		4) If any damage occurs which is more than the flyback limi the part must be removed (AMM 72-31-01/401).	t,
		(8) Remove the DO-NOT-OPERATE tags from the ENG START switch on P5 overhead panel.	

EFFECTIVITY

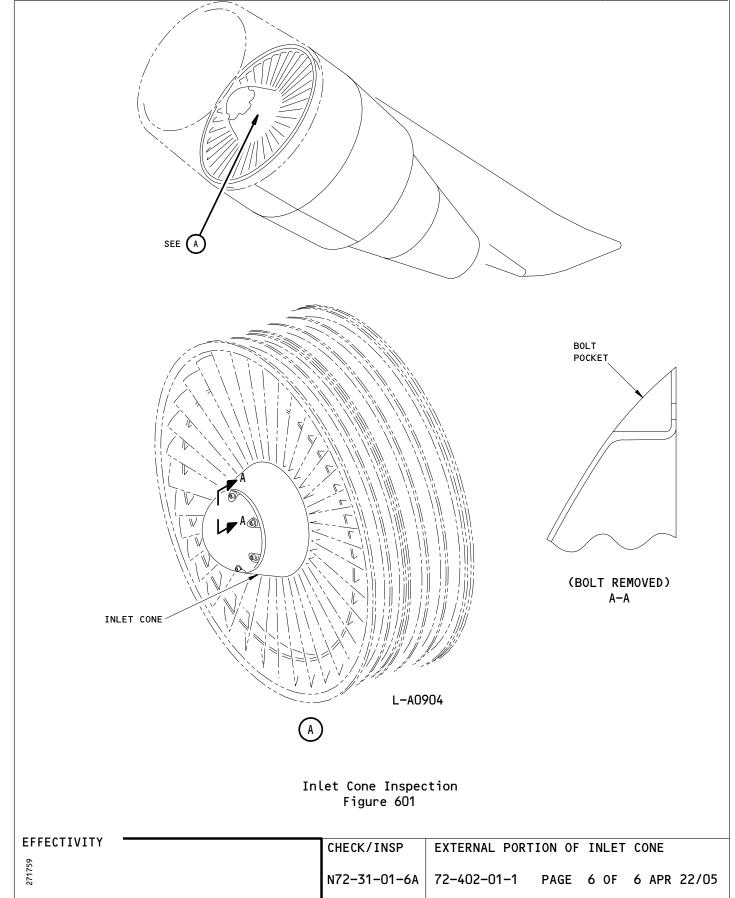
CHECK/INSP

72-402-01-1

AIRLINE CARD NO.

SAS

767 TASK CARD



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STATION
TAIL NO.
DATE

WORK AREA

SKILL



BOEING CARD NO. 72-402-01-2

AIRLINE CARD NO.

TASK CARD

MPD

PHASE

							REV	REVISION	
ENGIN	ENGINE	2		00500 HRS		10101	006	DEC 22/0)7
TASK			TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE	AF	PPLICABILITY	
							ΔΤΡΡΙ ΔΝ	IF FNGT	NF

INTERVAL

CHECK/INSP EXTERNAL PORTION OF INLET CONE

ACCESS PANELS

ACCESS PANELS

421

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE EXTERNAL SURFACES OF THE ENGINE 2 INLET CONE FOR CONDITION.

N72-31-01-6A

1. <u>Inlet Cone-Inspection/Check</u>

RELATED TASK

- A. Equipment
 - (1) Protective mat Rubber Manufactures Association, Grade SC43 Neoprene Sponge 1 in. thick, approximately 5x6 ft with warning streamer attached (3 required)
- B. Consumable Materials
 - (1) GO1077, Emery paper (Aluminum oxide) 200-325 Grit - PWA PO5-055
- C. References
 - (1) AMM 72-31-01/401, Inlet Cone
- D. Inspect The Inlet Cone (Fig. 601)
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the P5 overhead panel.

CAUTION: USE A PROTECTIVE MAT WHEN WORKING INSIDE THE INLET OR DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET CONE.

CHECK/INSP EXTERNAL PORTION OF INLET CONE

N72-31-01-6A 72-402-01-2 PAGE 1 OF 6 DEC 22/07

12 402 01 2

AIRLINE CARD NO.

SAS BOEING
767
TASK CARD

MECH INSP

(2) Position the protective mat in the lower ID of the inlet cone.

NOTE: Length to depth (L/D) ratio is equal to five noted differently. Limits apply to damaged area after blending and not to quantity of damage measured before blending.

- (3) Inspect the inlet cone for chipping, cracks and delamination caused by damage from a bird, ice, or other object.
 - (a) Inspect the exterior surface of the inlet cone. Look for any signs of chipping, cracks and delamination which are caused by foriegn object damage (FOD).
 - (b) Inspect the interior surface of the inlet cone for any visible signs of cracking or delamination. Impact damage to the outer surface of the cone segment which causes visible cracking or delamination of the inner surface indicates major structural damage. In this case, the cone segment must be removed from service (AMM 72-31-01/401).

NOTE: Inlet cones which have been subjected to damage which was caused by a bird, ice or by the use of impact tool are very susceptible to this type of damage.

- (4) Remove the protective mat from the inlet cowl.
- (5) The checks that follow are the Continue-In-Service Limits.
 - (a) The visual limits of the external cone surface FOD are as follows:
 - Minor paint chipping, dents or scratches which do not cause crazing with a primary path to inside surface of cone are permitted without restriction.
 - After the initial inspection, if any indication of cracks on any surface location are found, and these cracks go through the composite material, remove the part.
 - a) The maximum crack length is 12.0 in. (304.8 mm) for each crack.
 - b) A maximum of 10 cracks are permitted for each inlet cone.

EFFECTIVITY

CHECK/INSP

EXTERNAL PORTION OF INLET CONE

N72-31-01-6A

72-402-01-2 PAGE 2 OF 6 AUG 22/04

AIRLINE CARD NO.

			TASK CARD	
MECH	INSP	-	,	
			c) The cracks must be in the resin rich areas and mugo into the composite material. Find the correct depth by lightly sanding the surface with Emery P (P05-055).	t crack
			d) The cracks must not cause delamination.	
			e) The end of the crack must be at least 2.0 in. (50 away from the trailing edge.	(mm 8.
		(b)	The visible chipping and delamination limits of the exter cone surface are as follows:	'na l
			 No delamination or peeling is permitted on composite material surface. 	
			2) FOR ENGINES WITH PN 749629; Erosion or peeling of the black protective paint on to cone (front) segment is permitted up to 50% of the subarea, but the part must be replaced at the next sched maintenance action. If the area of erosion or peeling more than 50%, the cone (front) segment must be replayed within 50 hours maximum (AMM 72-31-01/401).	urface duled ng is
			3) FOR ENGINES WITH PN 51A681 AND 51A760; Erosion, peeling of flaking of the flouroelastomer con the cone (front) segment is not permitted except it bolt pocket corners. Replace the cone (front) segment within 50 hours if there is any erosion, peeling or for the flouroelastomer coating (AMM 72-31-01/401). Retained the flouroelastomer coating in bolt pocket corner if it is any erosion, peeling or flaking (AMM 72-31-01/801).	in the nt flaking Repair there
			<u>NOTE</u> : This is a temporary repair and the part must b replaced at the next scheduled maintenance int	
			4) For cone (rear) segment, erosion or peeling of the bl protective paint is permitted up to 10% of the surfact area, but the part must be replaced at the next sched maintenance action. If the area of erosion or peeling more than 10% of the surface area the cone (rear) segmust be replaced within 50 hours (AMM 72-31-01/401).	ce duled ng is
		(c)	The visable crack limits of the internal flange area are follows.	as

4

AIRLINE CARD NO.

				TASK CARD			
MECH	INSP	-					
			1)	Minor chipping, dents, scratches or discontinuo at resin rich areas in front flange or minor di crazing in resin rich areas at rear flange are without restriction.	scontinuous		
				NOTE: The front and rear flange cannot be easi Therefore, if inlet cone is thought to h the front segment must be removed and th the inlet cone inspected.	ave damage,		
		(6)	Inlet co	ne rear segment seal damage limits are as follow	ıs:		
			pro	ove any portion of the seal that is loose, hangi truding into the gaspath by trimming as close to e external surface as possible.			
			mus	amount of seal is permitted to be missing, but t be replaced at the next scheduled maintenance at the next C Check.			
		(7)	The chec	ne checks that follow are the Flyback Limits.			
			(a) Fly	back limits are for a maximum of 50 hours.			
			(b) The	 conditions that are permitted only for flyback Composite material delamination or peeling. Paint erosion or peeling. Indentations not more than 0.060 in. (1.524 depth or 1.500 in. (38.100 mm) in diameter. Local cracks which after inspection of the interior that cone are not longer than 0.500 in. are permitted for flyback limit only. 	mm) in		
			1)	Any through cracks, indentations or surface ply which is more than the flyback limits requires part, assembly, or engine be removed.			
				NOTE: The front segment of the inlet cone can if the through cracks are evident as lon secured to the rear segment.			
			2)	Crazing with a primary path (indicating a crack not exceed 0.500 in. (12.700 mm) in length is p			

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72-402-01-2

AIRLINE CARD NO.

SAS BOEING
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TASK CARD

		TASK CARD
MECI	INSP	·
		3) Any crack that ends less than 2.0 in. (50.0 mm) away from the traling edge is permitted for the flybacklimit only.
		4) If any damage occurs which is more than the flyback limit, the part must be removed (AMM 72-31-01/401).
		(8) Remove the DO-NOT-OPERATE tags from the ENG START switch on P5 overhead panel.

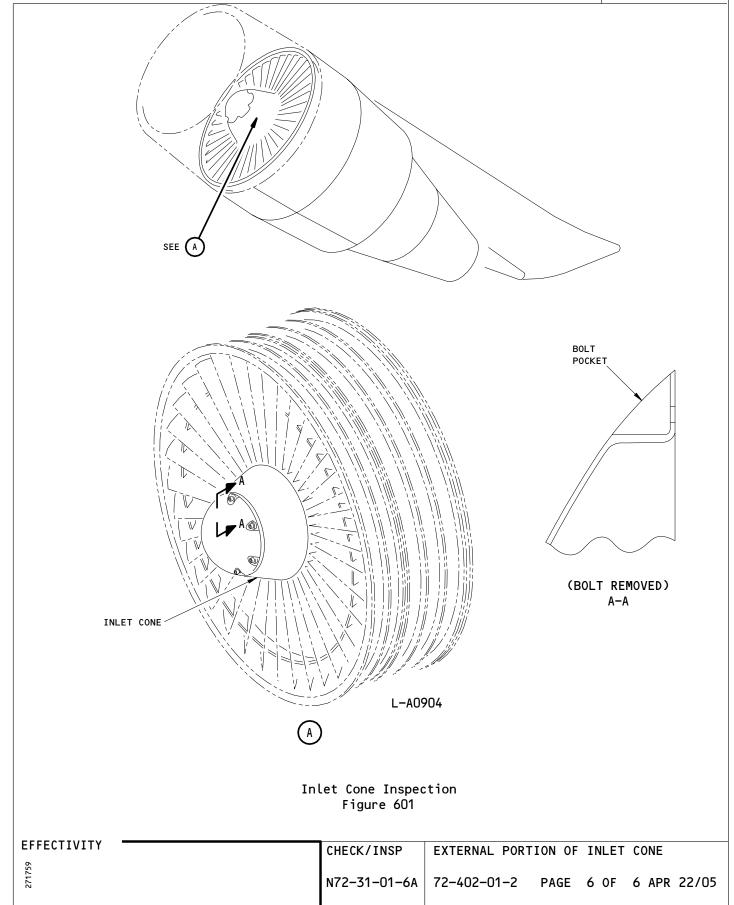
EFFECTIVITY

72-402-01-2

AIRLINE CARD NO.

SAS





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STAT				×			вое 72-4	ING CARD NO.
TAIL	NO.		CAC	BOEI	NG			LINE CARD NO.
DA	TE	-	SAS &	767			AIR	LINE CARD NO.
				TASK CAR				
SKILL	WORK AF	REA	RELATED TASK	INTERV	AL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			TITLE	LIFE LMT	NOTE STRUCTURAL ILLUSTRATION	99XXX	005	AUG 22/99
TASK REPLA(FAN HUB	TITLE		STRUCTURAL ILLUSTRATION	KEFEKENCE	AIRPLAN	
		17.11 1105					ALL	4000
(11	ZONES				ACCESS PANELS			
411 4	+21							
MECH INSP							ı	MPD ITEM NUMBER
MECH INSP								
		RD THE FAM					N72-3	0-00-A
	INTER	VAL NOTE:	AT MANUFAC MANUAL, CH	TURER'S LIFE LIMI	T (SEE ENGINE			
			MANUAL, CH	AFIER J.				
I								
EFFECT:	VITY			DEDL 4.05	FAN 1915			
				REPLACE	FAN HUB			

STA	TION							BOE	ING CAR	D NO.
TAIL NO.				(S BOEL	ING		72-4	04-0′	1–1
	ATE		S	AS &	767			AIR	LINE CAR	tD NO.
U.	AIE				TASK CA	ARD				
SKILL	WORK ARE	Α	REL	LATED TASK INTER\		RVAL	PHASE	MPD REV	1	SK CARD EVISION
ENGIN	ENGINE	1			02000 HRS		10404	005	DEC	22/07
TASI	K			TITLE		STRUCTURAL ILLUSTRATION R	EFERENCE	AIRPLAN	PLICABI	LITY ENGINE
CHECK/INSP 1S		1ST	STAGE	COMPRESSOR	STATOR VANES			ALKI LA	-	LITOTINE
								ALL		4000
	ZONES					ACCESS PANELS				
411										

MECH INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FIRST STAGE COMPRESSOR STATOR VANES.

N72-31-04-6A

1ST STAGE STATOR - INSPECTION/CHECK

1. Examine the 1st-Stage Stator Vanes (Fig. 601)

A. General

- (1) This procedure gives the steps for the inspection of the 1st-stage stator assembly.
- (2) The stator assembly is a circular flange to which the stator vanes are attached. This stator assembly is at the forward section of the front compressor, and is immediately aft of the fan rotor blades.
- (3) When you examine the blades and vanes, make sure you find the cause of all foreign object damage (FOD), to make sure that the LP compressor is fully serviceable. FOD damage in this area can be an indication of a more dangerous problem. If you find FOD damage, make sure no other components in the same area are damaged.
- (4) The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.
- (5) The edges or surfaces of the vanes that you will examine were possibly blended. To blend a vane is to remove material around damage on the vane until the damaged area becomes smooth.

B. References

- (1) AMM 72-31-04/801, 1st-Stage Stator
- C. Access

EFFECTIVITY	CHECK/INSP	1ST STAGE COMPRESSOR STATOR VANES
	N72-31-04-6A	72-404-01-1 PAGE 1 OF 6 DEC 22/07

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

(1) Location Zones

410 Left Engine 420 Right Engine

- D. Prepare for the Procedure.
 - (1) Attach a DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.
- E. Examine the 1st-Stage Stator Vanes.
 - (1) Replace or repair vanes that have nicks or dents (AMM 72-31-04/401).
 - (2) Compare the damage you find with Table 601 and the limits that follow (Fig. 601).

<u>NOTE</u>: These limits are for damage that was blended, and not for damage that is not blended.

TABLE 601 MAXIMUM PERMITTED BLEND LIMITS							
VANE AREA	LIMIT						
Α	0.100 inch (2.540 mm)						
В	0.090 inch (2.286 mm)						
С	0.100 inch (2.540 mm)						
D	0.090 inch (2.286 mm)						
E	25 percent of local thickness						

- (a) Blended areas on the concave airfoil surface can be on no more than 20 percent of the surface area.
 - 1) Rounded bottom dents are permitted.
- (b) Blended areas on the convex airfoil surface can be on no more than 5 percent of the surface area.

EFFECTIVITY

CHECK/INSP 1ST STAGE COMPRESSOR STATOR VANES

N72-31-04-6A

72-404-01-1 PAGE 2 OF 6 AUG 22/04

4

TASK CARD

AIRLINE CARD NO.

MECH	INSP		
		(c) The sum of the lengths of all blended areas on the two edg a vane must not be more than 0.500 inch (12.700 mm).	ges of
		(d) No more than two blended areas at the maximum depth limit permitted on each vane.	are
		(e) Areas that are blended must have a length that is not less four times the depth.	s than
		(f) The limits that follow are for blended areas that are at t maximum depth on opposite edges of the vane.	the
		 One blended area must not be immediately opposite the other. 	
		2) One blended area must not be less than the vane width average from the other blended area.	
		(g) The limit that follows is for blended areas that are not a maximum depth, are on opposite edges, and one is nearer the the vane width average to the other.	
		 The sum of the depths of the two blended areas must no more than the maximum depth for one blended nick. 	ot be
		(h) The sum of the lengths of all edge blended areas in the va and shroud assembly must not be more than 6.000 inches (15 mm).	
		(i) All local blended areas on the concave and convex sides mu have an area that is not less than 15 times the depth of t damage.	
		(j) Pitting and corrosion can be repaired if the damage does r have a depth that is more than 12 percent of the local var thickness.	
		<u>NOTE</u> : Pitting is a concentration of corrosion at a point.	-
		(k) The surface finish on a blended vane must be the same as t surface finish on a new vane.	the
		(l) Damage which you can see on the opposite side of the vane not permitted.	is

EFFECTIVITY

72-404-01-1

BOEING 767 TASK CARD MECH INSP

AIRLINE CARD NO.

- Compare the damage to the sealing compound on the inner shroud with the limits that follow (Fig. 601):
 - Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are permitted if the vane is not loose.
 - 2) Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are not permitted if the vane is loose.
- (n) Repair the vanes that must be repaired (AMM 72-31-04/801).
- F. Put the airplane back to its usual condition.
 - Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.

EFFECTIVITY

CHECK/INSP

1ST STAGE COMPRESSOR STATOR VANES

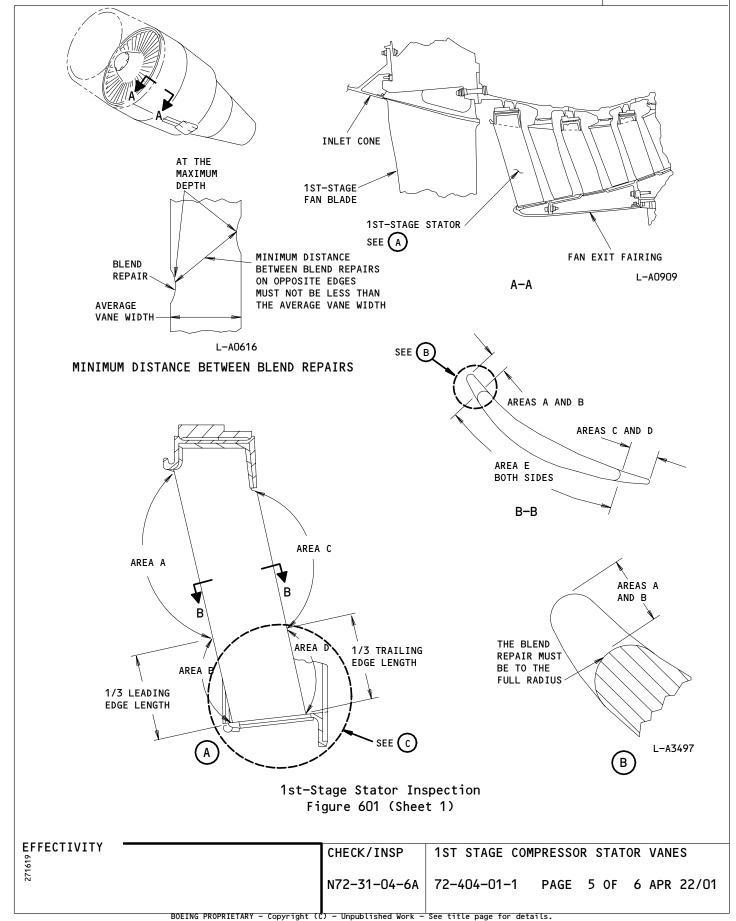
N72-31-04-6A

72-404-01-1 PAGE 4 OF 6 AUG 22/04

AIRLINE CARD NO.

SAS

767 TASK CARD

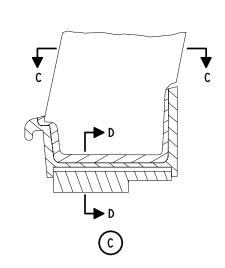


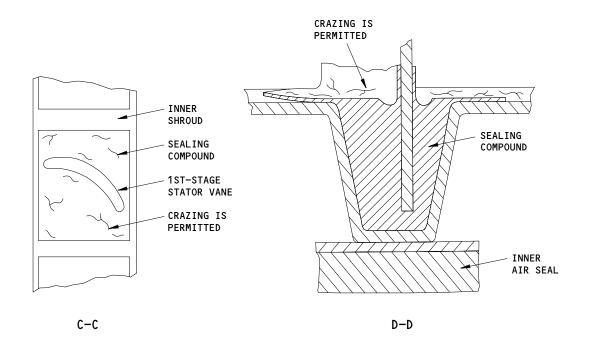
AIRLINE CARD NO.

72-404-01-1

SAS

767
TASK CARD





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1st-Stage Stator Inspection Figure 601 (Sheet 2)

EFFECTIVITY

CHECK/INSP N72-31-04-6A 1ST STAGE COMPRESSOR STATOR VANES

72-404-01-1 PAGE 6 OF 6 APR 22/01

STA	TION						BOE	ING CARD NO.
TAI	L NO.		(BOEIN	i G		72-4	04-01-2
	ATE		SAS &	767			AIRI	INE CARD NO.
D	AIE			TASK CARD				
SKILL	WORK ARE	Ā	RELATED TASK	INTERVAL		PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE	2		02000 HRS		10404	005	DEC 22/07
TAS	K		TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE		PLICABILITY
CHECK	/INSP	1ST	STAGE COMPRESSOR	STATOR VANES			AIRPLAN	E ENGINE
							ALL	4000

421

ZONES

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FIRST STAGE COMPRESSOR STATOR VANES.

N72-31-04-6A

1ST STAGE STATOR - INSPECTION/CHECK

1. Examine the 1st-Stage Stator Vanes (Fig. 601)

A. General

(1) This procedure gives the steps for the inspection of the 1st-stage stator assembly.

ACCESS PANELS

- (2) The stator assembly is a circular flange to which the stator vanes are attached. This stator assembly is at the forward section of the front compressor, and is immediately aft of the fan rotor blades.
- (3) When you examine the blades and vanes, make sure you find the cause of all foreign object damage (FOD), to make sure that the LP compressor is fully serviceable. FOD damage in this area can be an indication of a more dangerous problem. If you find FOD damage, make sure no other components in the same area are damaged.
- (4) The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.
- (5) The edges or surfaces of the vanes that you will examine were possibly blended. To blend a vane is to remove material around damage on the vane until the damaged area becomes smooth.

B. References

- (1) AMM 72-31-04/801, 1st-Stage Stator
- C. Access

CHECK/INSP 1ST STAGE COMPRESSOR STATOR VANES

N72-31-04-6A 72-404-01-2 PAGE 1 OF 6 DEC 22/07

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

- (1) Location Zones
 - 410 Left Engine
 - 420 Right Engine
- D. Prepare for the Procedure.
 - (1) Attach a DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.
- E. Examine the 1st-Stage Stator Vanes.
 - (1) Replace or repair vanes that have nicks or dents (AMM 72-31-04/401).
 - (2) Compare the damage you find with Table 601 and the limits that follow (Fig. 601).

<u>NOTE</u>: These limits are for damage that was blended, and not for damage that is not blended.

TABLE 601 MAXIMUM PERMITTED BLEND LIMITS							
VANE AREA	LIMIT						
Α	0.100 inch (2.540 mm)						
В	0.090 inch (2.286 mm)						
С	0.100 inch (2.540 mm)						
D	0.090 inch (2.286 mm)						
E	25 percent of local thickness						

- (a) Blended areas on the concave airfoil surface can be on no more than 20 percent of the surface area.
 - 1) Rounded bottom dents are permitted.
- (b) Blended areas on the convex airfoil surface can be on no more than 5 percent of the surface area.

EFFECTIVITY

CHECK/INSP 1ST STAG

1ST STAGE COMPRESSOR STATOR VANES

N72-31-04-6A

72-404-01-2 PAGE 2 OF 6 AUG 22/04

SAS BOEING TASK CARD

AIRLINE CARD NO.

MECH	INSP		
		(c) The sum of the lengths of all blended areas on the a vane must not be more than 0.500 inch (12.700 mm)	
		(d) No more than two blended areas at the maximum depth permitted on each vane.	limit are
		(e) Areas that are blended must have a length that is n four times the depth.	ot less than
		(f) The limits that follow are for blended areas that a maximum depth on opposite edges of the vane.	re at the
		 One blended area must not be immediately opposi other. 	te the
		2) One blended area must not be less than the vane average from the other blended area.	width
		(g) The limit that follows is for blended areas that ar maximum depth, are on opposite edges, and one is ne the vane width average to the other.	
		1) The sum of the depths of the two blended areas more than the maximum depth for one blended nic	
		(h) The sum of the lengths of all edge blended areas in and shroud assembly must not be more than 6.000 inc mm).	
		(i) All local blended areas on the concave and convex s have an area that is not less than 15 times the dep damage.	
		(j) Pitting and corrosion can be repaired if the damage have a depth that is more than 12 percent of the lo thickness.	
		NOTE: Pitting is a concentration of corrosion at a	point.
		(k) The surface finish on a blended vane must be the sa surface finish on a new vane.	me as the
		(l) Damage which you can see on the opposite side of th not permitted.	e vane is
	1		

EFFECTIVITY

72-404-01-2

AIRLINE CARD NO.

		TASK CARD					
MECH	INSP						
		(m) Compare the damage to the sealing compound on the inner shroud with the limits that follow (Fig. 601):					
		 Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are permitted if the vane is not loose. 					
		2) Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are not permitted if the vane is loose.					
		(n) Repair the vanes that must be repaired (AMM 72-31-04/801).					
		F. Put the airplane back to its usual condition.					
		(1) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.					

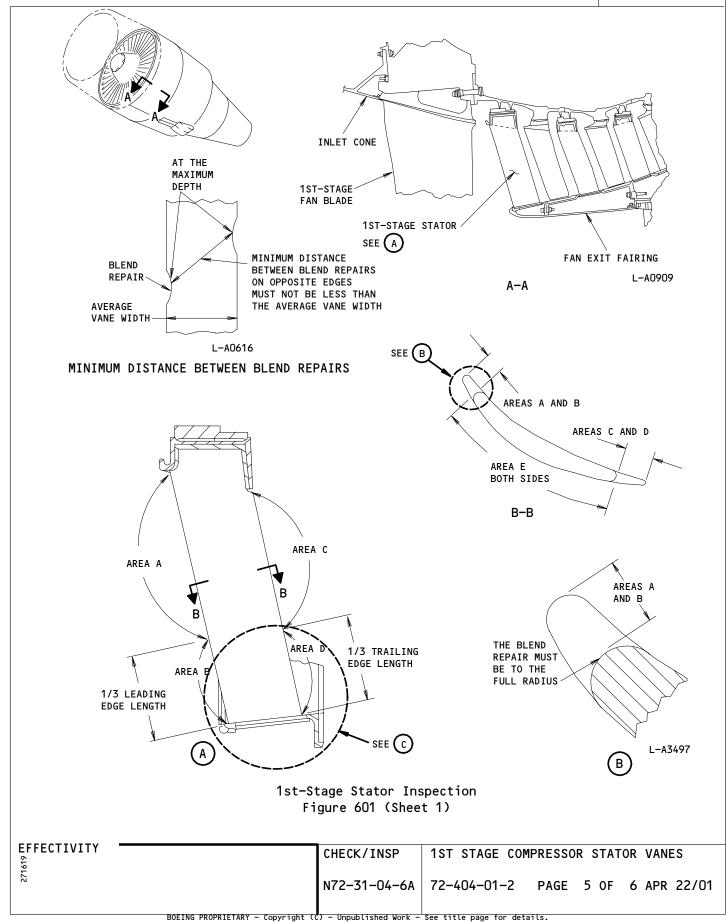
EFFECTIVITY

CHECK/INSP

AIRLINE CARD NO.

SAS

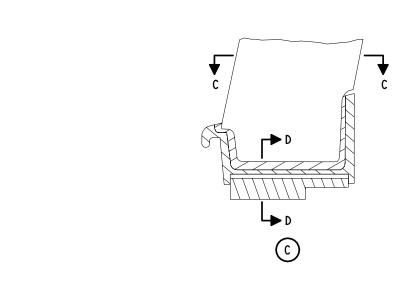


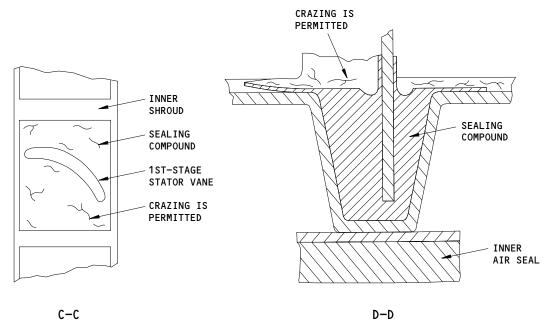


AIRLINE CARD NO.

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1st-Stage Stator Inspection Figure 601 (Sheet 2)

EFFECTIVITY CHECK/INSP 1ST STAGE COMPRESSOR STATOR VANES N72-31-04-6A 72-404-01-2 PAGE 6 OF 6 APR 22/01

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	STAT	ION						BOE	ING CARD NO.
	TAIL	NO.			S BOEIL	NG		72-40	04-02-1
	DA.	T.E.	,	SAS &	767			AIRL	INE CARD NO.
	DA.	IE			TASK CAR	lD.			
SKI	LL	WORK ARI	EA I	RELATED TASK	INTERV	AL	PHASE	MPD REV	TASK CARD REVISION
ENG	IN	ENGINE	1		02000 HRS		10404	005	DEC 22/07
	TASK		4 / 2=12	TITLE		STRUCTURAL ILLUSTRATION R	EFERENCE	AP AIRPLAN	PLICABILITY E ENGINE
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		ZONES				ACCESS PANELS		ALL	4000
41	1								
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		VTSHAL	I A CHECK .	THE ENGINE 1	1.6 STAGE COMPR	ESSOR ROTOR		N72-3	1-05-A
		BLADES		THE ENGINE I	TIO OTAGE COM N	LOOK KOTOK		3	. 05 //
				OUT EVANTUE	THE 4 /TH OTAGE	DI ADEC ECD CIONO	0.5		
		FOD.	MHIIE LI	GHI, EXAMINE	THE 1.6TH-STAGE	BLADES FOR SIGNS	OF		
			TO DO A D	ETAILED INSP	ECTION, YOU CAN	REMOVE THE 1ST-STA	\GE		
						IN THE THRU FAN AP			
		YOU FI	ND DAMAGE	, REFER TO A	MM 72-31-05/601	FOR THE DAMAGE LIM	IITS.		

	0717	TON!	l					5.5-	THE CARD NO	
	STATI	ION							ING CARD NO.	
TAIL NO.					7) BOEII	V <i>G</i>		72-404-02-2		
				SAS &	767			AIRL	INE CARD NO.	
	DA.	_			TASK CAR	D				
SKILI	L	WORK ARI	EA R	ELATED TASK	INTERVA	L	PHASE	MPD REV	TASK CARD REVISION	
ENG:	IN	ENGINE	2		02000 HRS		10404	005	DEC 22/07	
	TASK			TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE	AP AIRPLAN	PLICABILITY ENGINE	
CHE	ECK/	INSP	1.6 STAGE	COMPRESSOR	R ROTOR BLADES			ALL	4000	
		ZONES		Т		ACCESS PANELS		ALL	4000	
421	1									
MECH	INSP							М	PD ITEM NUMBER	
		VISUAL		HE ENGINE 2	2 1.6 STAGE COMPRI	ESSOR ROTOR		N72-3	1-05-A	
		DLAVES	•							
			WHITE LIG	HT, EXAMINE	THE 1.6TH-STAGE	BLADES FOR SIGNS	OF			
		FOD.	TO DO A DE	TATIED INSE	PECTION YOU CAN I	REMOVE THE 1ST-STA	GE			
						IN THE THRU FAN AP				
		YOU FI	ND DAMAGE	REFER TO AM	MM 72-31-05/601 F	OR THE DAMAGE LIMI	TS.			

EFFECTIVITY

ST	TATION						ВОЕ	EING CARD NO.
TA	IL NO.	_		BOEIR	VG		72-4	05
	DATE	_	SAS &	767			AIR	LINE CARD NO.
	DATE			TASK CARI				
SKILL	WORK AR	EA	RELATED TASK	INTERVAL		PHASE	MPD REV	TASK CARD REVISION
SHOPS				LIFE LMT	NOTE	99XXX	005	AUG 22/99
	NSK	I OU DDE	TITLE	OOOD DOUM DOTOD	STRUCTURAL ILLUSTRATION	REFERENCE	AIRPLAN	PLICABILITY E ENGINE
REPL	ACE	LOW PRE	ESSURE COMPRE	SSOR DRUM ROTOR			ALL	4000
	ZONES				ACCESS PANELS			
411	421							
								MPD ITEM NUMBER
MECH INS	P							
	DISCAF	RD THE LO	OW PRESSURE C	OMPRESSOR DRUM ROT	OR.		N72-3	0-00-в
	INTER	/AL NOTE:		TURER'S LIFE LIMIT	(SEE ENGINE			
			MANUAL, CH	APIER D).				
EFFEC	TIVITY '			REPLACE	LOW PRESSURE	COMPRESSO	B DBII	M ROTOR
1				v_		000	>10	

N72-30-00-B

72-405

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STA	TION							B0E	ING CARD NO.
TAI	L NO.				S BOEII	NG .		72-4	06-01-1
			S	SAS &	767			AIRI	LINE CARD NO.
D	ATE				TASK CAR	D			
SKILL	WORK ARE	Ā	RE	LATED TASK	INTERVA	L	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE	1			00500 HRS		10101	005	DEC 22/07
TAS	K			TITLE		STRUCTURAL ILLUSTRATION R	FERENCE	AF AIRPLAN	PLICABILITY E ENGINE
CHECK	/INSP	FAN	CASE F	RING SEGMEN	ITS (RUBSTRIPS)			AIRFLAN	E ENGINE
								ALL	4000
	ZONES					ACCESS PANELS			
411									

MECH INSP

MPD ITEM NUMBER

CHECK THE ENGINE 1 FAN CASE RING SEGMENTS (RUBSTRIPS) FOR WEAR AND DAMAGE.

N72-33-01-6A

- 1. Examine the Fan Case Rubstrips (Fig. 601)
 - A. Equipment
 - (1) Gage PWA 29156 , Pratt & Whitney, Commercial Products Division, 400 Main Street, East Hartford, CT 06108

<u>NOTE</u>: This gage is an alternative to the standard dial indicator depth gage.

(2) Gage - Depth, Standard Dial Indicatorm with tapered contact point

NOTE: This Depth gage is an alternative to the PWA 29156 gage.

- (3) Mat Protective, rubber Manufacturer's Association, grade sc43, neoprine sponge, 1 inch thick, 3x4 feet with warning streamers attached (three required)
- B. Prepare for the Inspection
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.
 - (2) Put the protective mat in the inlet cowl.
- C. Do an Inspection of the Fan Case Rubstrip
 - (1) Do these steps to examine the ribs of the interrupted continuous groove (ICG) rubstrip on the fan case duct segments for worn areas:

EFFECTIVITY	CHECK/INSP	FAN CASE RING SEGMENTS (RUBSTRIF		
	N72-33-01-6A	72-406-01-1	PAGE 1 OF 7 DEC 22/07	

72-406-01-1

AIRLINE CARD NO.

	TASK CARD
NSP	
	(a) Use an approved dial depth gage with a tapered contact point or a PWA 29156 gage to measure the depth of the worn areas on the rubstrip.
	 Make sure there is no unwanted material in the rubstrip groove.
	<u>NOTE</u> : Unwanted material in the rubstrip groove can cause incorrect depth values.
	Make sure the point of the gage touches the bottom of the groove.
	NOTE: It is possible that you must measure more than once at the same position to find the largest depth, because the bottom of each groove is rounded.
	(b) If you use the PWA 29156 gage to measure the depth of the worn areas in the rubstrips, do the steps that follow:
	 Put the gage in the set master on the surface marked 0.260 inch (6.604 mm).
	Set the revolution counter, the dial indicator hand, and the bezel to zero.
	3) Calculate the value of the depth for each position.
	NOTE: The depth that you measure must be subtracted from the 0.260 inch (6.604 mm) dimension to find the correct value of the depth. If you use a standard depth gage, it is not necessary to calculate the depth; the value on the gage is the correct value.
	(c) Make a record of the position and the depth of the worn areas at the eight locations shown (Fig. 601).
	 Install the gage in the third groove from the front of the fan case (flange A).
	2) Write the calculated value of the depth for each position.
	(d) Calculate the average of the depth values at the three positions for each Group, A through F, as shown in Table 601.
	NSP

EFFECTIVITY

AIRLINE CARD NO.

72-406-01-1

SAS Ø

MECH	INSP
------	------

- 1) The average for each group must not be less than 0.140 inch (3.556 mm) in depth.
- 2) If the average depth for one or more groups is less than 0.140 inch (3.556 mm) remove the fan case (AMM 72-33-01/401).

Group	Positions of the Gage	Group	Positions of the Gage
Group A	7, 8, 1	Group D	3, 4, 5
Group B	8, 1, 2	Group E	4, 5, 6
Group C	1, 2, 3	Group F	5, 6, 7

LOCATIONS OF THE DEPTH VALUES TABLE 601

(2) Examine the duct segments as follows to find if they are bonded to the fan case.

NOTE: A duct segment that is not bonded is not permitted.

- (a) With your finger, press the duct segment in the area where you think there is no bond.
 - 1) Examine the segment carefully to see if there is play in the rubstrip.
- (b) With the plastic end of a screwdriver or other tool, hit the rubstrip lightly all around.
 - 1) Listen to the sound.
 - 2) If the sound is a clear ring, (has a high frequency) the rubstrip is well bonded.
 - 3) If the sound is a dull thud (has a low frequency), the rubstrip is not bonded.
- (3) Compare the rib damage, cracks, and holes with the limits in table 601.

EFFECTIVITY

CHECK/INSP

FAN CASE RING SEGMENTS (RUBSTRIPS)

N72-33-01-6A

72-406-01-1 PAGE 3 OF 7 FEB 10/95

4

72-406-01-1

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH	INSP						
		(a)	The 60-hour co rib damage tha follows:		ice limit for o the serviceab		
				ct segments ha	ate the engine ve rib damage †		
EFF	ECTI	VITY		CHECK/INSP	FAN CASE RING	SEGMENTS (R	UBSTRIPS)
				N72-33-01-6A	72-406-01-1	PAGE 4 OF	7 FEB 10/95

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72-406-01-1

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

INSP					
	DUCT SEGMENT INSP	TABLE 601 PECTION LIMITS FOR RIB DAMAG	E, CRACKS, AND HOLES		
	Examine	Serviceable Limits	Repairable Limits		
	Duct Segment Rib that is not There:				
	Total length of each rib on each segment	3.0 inches (7.200 mm) Circumferentially Maximum	6.0 inches (152.400 mm) Circumferentially Maximum		
	Total length of one rib, on all segments	10.0 inches (254.200 mm) Circumferentially Maximum	15 inches (381.000 mm) Circumferentially Maximum		
	Distance from an area on an adjacent rib where there is no rib	6.0 inches (152.400 mm) Minimum			
	Cracks: Width	0.015 inch (0.381 mm) Maximum	0.125 inch (3.175 mm) Maximum		
	Distance (from other Cracks)	4.0 inches (101.600 mm) Minimum			
	Length of a circum- ferential crack	4.0 inches (101.600 mm) Maximum	6.0 inches (152.400 mm) Maximum		
	Length of an Axial Crack That is Within 0.250 inch (6.350 mm) of the Axial Edge of the Segment	No Limit			
	Length of other Axial Cracks	4.0 inches (101.600 mm) Maximum			
	Holes: Dimension at the largest width	0.125 inch (3.175 mm) Maximum	6.0 inches (152.400 mm) Maximum		
	Depth	0.125 inch (3.175 mm) Maximum	No Limit		
	 	<u> </u>	<u> </u>		

EFFECTIVITY	CHECK/INSP	FAN CASE RING	SEGMEN	NTS (R	UBSTRIPS)
	N72-33-01-6A	72-406-01-1	PAGE	5 OF	7 AUG 10/94

72-406-01-1

AIRLINE CARD NO.

SAS FOEING
767
TASK CARD

MECH	INSP																
				(b) F	Repair	the o	damag	e tha	t you	find (AMM 7	2-33-	01/80	1).			
		(4)	Remove	the	mat fr	om t	he in	let co	wl.							
		(5)	Remove	the	DO-NOT	Γ – 0ΡΕΙ	RATE	tag fr	om the	ENG S	START	swit	ch on	pane	el P5	
EFF	ECTI	VITY					C	HECK/	INSP	FAN	CASE I	RING	SEGME	NTS (R	UBST	RIPS)
							N.	72 – 33	-01-6A	72-4	06-01	-1	PAGE	6 OF	7 <i>I</i>	AUG 10	0/94

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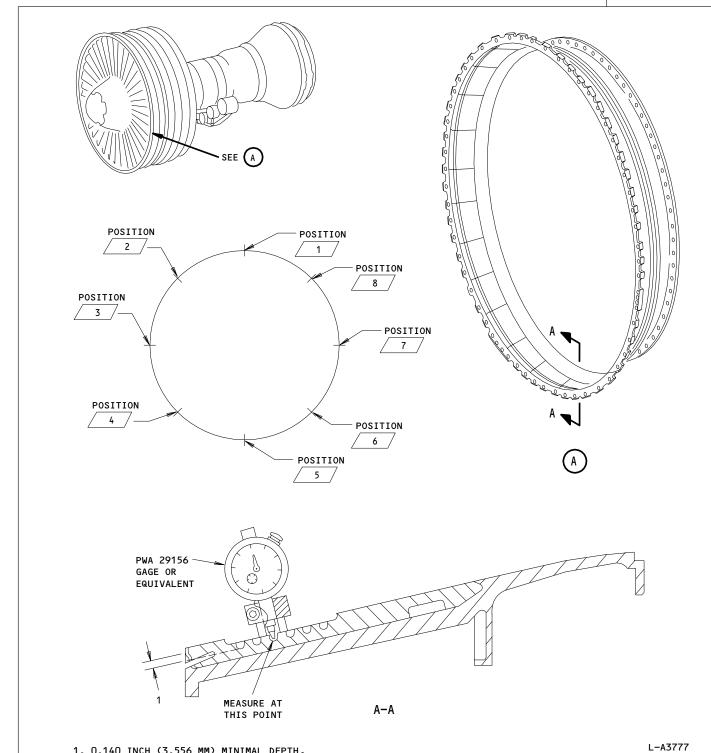
767 TASK CARD

SAS

1. 0.140 INCH (3.556 MM) MINIMAL DEPTH, AVERAGE OVER SPECIFIED POSITIONS 72-406-01-1

AIRLINE CARD NO.

0987



Fan Case Duct Segment (rubstrip) Wear Figure 601

CHECK/INSP FAN CASE RING SEGMENTS (RUBSTRIPS)

N72-33-01-6A 72-406-01-1 PAGE 7 OF 7 NOV 10/88

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STA	TION									BOE	ING CAR	D NO.
TAII	L NO.					BOL	7/N	G		72-4	06-0′	1-2
	ATE		S	AS		 76	7			AIRI	LINE CAR	D NO.
D.	AIE					TASK	CARD					
SKILL	WORK ARE	A	RELA	ATED TASK		I	NTERVAL		PHASE	MPD REV		SK CARD VISION
ENGIN	ENGINE	2				00500 HRS			10101	005	DEC	22/07
TAS	К				TITLE			STRUCTURAL ILLUSTRATION RE	FERENCE	AIRPLAN	PLICABI	LITY ENGINE
CHECK	/INSP	FAN	CASE R	ING S	EGMENTS	(RUBSTRIPS	3)			712111 27111	-	2.102.112
										ALL		4000
	ZONES							ACCESS PANELS				

421

MECH INSP

MPD ITEM NUMBER

CHECK THE ENGINE 2 FAN CASE RING SEGMENTS (RUBSTRIPS) FOR WEAR AND DAMAGE.

N72-33-01-6A

- Examine the Fan Case Rubstrips (Fig. 601)
 - Equipment Α.
 - (1) Gage PWA 29156 , Pratt & Whitney, Commercial Products Division, 400 Main Street, East Hartford, CT 06108

NOTE: This gage is an alternative to the standard dial indicator depth gage.

(2) Gage - Depth, Standard Dial Indicatorm with tapered contact point

NOTE: This Depth gage is an alternative to the PWA 29156 gage.

- Mat Protective, rubber Manufacturer's Association, grade sc43, neoprine sponge, 1 inch thick, 3x4 feet with warning streamers attached (three required)
- Prepare for the Inspection
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.
 - (2) Put the protective mat in the inlet cowl.
- Do an Inspection of the Fan Case Rubstrip
 - (1) Do these steps to examine the ribs of the interrupted continuous groove (ICG) rubstrip on the fan case duct segments for worn areas:

EFFECTIVITY CHECK/INSP FAN CASE RING SEGMENTS (RUBSTRIPS) N72-33-01-6A 72-406-01-2 PAGE 1 OF 7 DEC 22/07

72-406-01-2

AIRLINE CARD NO.

			TASK CARD	
MECH	INSP			
		(a)	Use an approved dial depth gage with a tapered conta PWA 29156 gage to measure the depth of the worn a rubstrip.	
			 Make sure there is no unwanted material in the groove. 	rubstrip
			NOTE: Unwanted material in the rubstrip groove incorrect depth values.	e can cause
			2) Make sure the point of the gage touches the bot groove.	ctom of the
			NOTE: It is possible that you must measure mor at the same position to find the largest because the bottom of each groove is rou	depth,
		(b)	If you use the PWA 29156 gage to measure the depth areas in the rubstrips, do the steps that follow:	of the worn
			 Put the gage in the set master on the surface m inch (6.604 mm). 	narked 0.260
			Set the revolution counter, the dial indicator the bezel to zero.	hand, and
			3) Calculate the value of the depth for each posit	ion.
			NOTE: The depth that you measure must be subtr from the 0.260 inch (6.604 mm) dimension correct value of the depth. If you use depth gage, it is not necessary to calcu depth; the value on the gage is the corr	n to find the a standard ulate the
		(c)	Make a record of the position and the depth of the at the eight locations shown (Fig. 601).	worn areas
			 Install the gage in the third groove from the fan case (flange A). 	front of the
			2) Write the calculated value of the depth for each	ch position.
		(d)	Calculate the average of the depth values at the the positions for each Group, A through F, as shown in	

EFFECTIVITY

72-406-01-2

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

- 1) The average for each group must not be less than 0.140 inch (3.556 mm) in depth.
- 2) If the average depth for one or more groups is less than 0.140 inch (3.556 mm) remove the fan case (AMM 72-33-01/401).

Group	Positions of the Gage	Group	Positions of the Gage
Group A	7, 8, 1	Group D	3, 4, 5
Group B	8, 1, 2	Group E	4, 5, 6
Group C	1, 2, 3	Group F	5, 6, 7

LOCATIONS OF THE DEPTH VALUES TABLE 601

(2) Examine the duct segments as follows to find if they are bonded to the fan case.

NOTE: A duct segment that is not bonded is not permitted.

- (a) With your finger, press the duct segment in the area where you think there is no bond.
 - 1) Examine the segment carefully to see if there is play in the rubstrip.
- (b) With the plastic end of a screwdriver or other tool, hit the rubstrip lightly all around.
 - 1) Listen to the sound.
 - 2) If the sound is a clear ring, (has a high frequency) the rubstrip is well bonded.
 - 3) If the sound is a dull thud (has a low frequency), the rubstrip is not bonded.
- (3) Compare the rib damage, cracks, and holes with the limits in table 601.

EFFECTIVITY

CHECK/INSP

FAN CASE RING SEGMENTS (RUBSTRIPS)

N72-33-01-6A

72-406-01-2 PAGE 3 OF 7 FEB 10/95

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72-406-01-2

AIRLINE CARD NO.

SAS BOEING
767
TASK CARD

MECH	INSP						
			(a)	ontinue-in-serv at is more than			
				ontinue to oper uct segments ha le limits.			
EFF	ECTI	VITY		CHECK/INSP	FAN CASE RING	SEGMENTS (R	UBSTRIPS)
				N72-33-01-6A	72-406-01-2	PAGE 4 OF	7 FEB 10/95

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AIRLINE CARD NO.

SAS BOEING
767
TASK CARD

MECH INSP

	TABLE 601	
DUCT SEGMENT INSP	PECTION LIMITS FOR RIB DAMAGE	E, CRACKS, AND HOLES
Examine	Serviceable Limits	Repairable Limits
Duct Segment Rib that is not There:		
Total length of each rib on each segment	3.0 inches (7.200 mm) Circumferentially Maximum	6.0 inches (152.400 mm) Circumferentially Maximum
Total length of one rib, on all segments	10.0 inches (254.200 mm) Circumferentially Maximum	15 inches (381.000 mm) Circumferentially Maximum
Distance from an area on an adjacent rib where there is no rib	6.0 inches (152.400 mm) Minimum	
Cracks: Width	0.015 inch (0.381 mm) Maximum	0.125 inch (3.175 mm) Maximum
Distance (from other Cracks)	4.0 inches (101.600 mm) Minimum	
Length of a circum- ferential crack	4.0 inches (101.600 mm) Maximum	6.0 inches (152.400 mm) Maximum
Length of an Axial Crack That is Within O.250 inch (6.350 mm) of the Axial Edge of the Segment	No Limit	
Length of other Axial Cracks	4.0 inches (101.600 mm) Maximum	
Holes: Dimension at the largest width	O.125 inch (3.175 mm) Maximum	6.0 inches (152.400 mm) Maximum
Depth	0.125 inch (3.175 mm) Maximum	No Limit

EFFECTIVITY	CHECK/INSP	FAN CASE RING	SEGMENTS	(RUBSTRIPS)
	N72-33-01-6A	72-406-01-2	PAGE 5	OF 7 AUG 10/94

72-406-01-2

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH	INSP											
		41.5				24 (204)						
		(b) Repa	ir the damage that	t you find	1 (AMM 72-33-1	J1/8U1).						
		(4) Remove the mat from the inlet cowl.										
		(5) Remove th	DO-NOT-OPERATE 1	tag from t	he ENG START	switch o	n panel P5.					
				J			•					
		WITY -		<u> </u>								
EFF	ECTI	ATIA	CHECK/	INSP FA	N CASE RING	SEGMENTS	(RUBSTRIPS)					

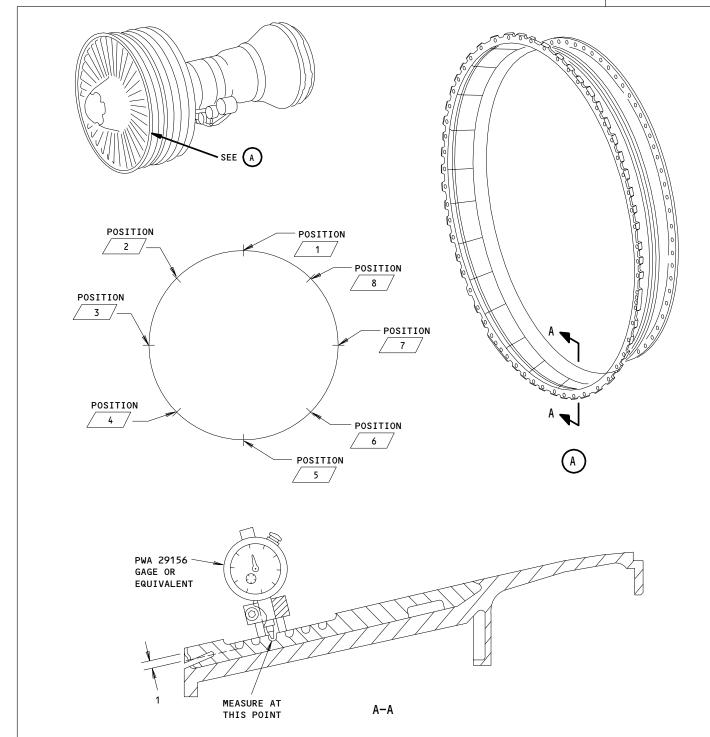
N72-33-01-6A 72-406-01-2 PAGE 6 OF 7 AUG 10/94

72-406-01-2

SAS

FOEING 767 TASK CARD

AIRLINE CARD NO.



1. 0.140 INCH (3.556 MM) MINIMAL DEPTH, AVERAGE OVER SPECIFIED POSITIONS L-A3777

0987

Fan Case Duct Segment (rubstrip) Wear Figure 601

CHECK/INSP FAN CASE RING SEGMENTS (RUBSTRIPS)

N72-33-01-6A 72-406-01-2 PAGE 7 OF 7 NOV 10/88

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STATION	
TAIL NO.	\dashv
DATE	

WORK AREA

SKILL



BOEING CARD NO. 72-407-01-1

AIRLINE CARD NO.

TASK CARD

MPD

PHASE

ENGIN ENGINE 1 01000 HRS 1 10202 011 DEC 22/07

TASK TITLE STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

CHECK/INSP FAN EXIT CASE AND VANES ASSEMBLY
ALL 4000

INTERVAL

ZONES ACCESS PANELS

411 413AL 414AR 415AL 416AR 417AL 418AR

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN EXIT CASE AND VANES ASSEMBLY FOR CONDITION AND SECURITY.

N72-33-02-6A

1. Examine the Fan Exit Case and Vane

RELATED TASK

- A. References
 - (1) AMM 70-11-06/201, Flourescent Penetrant Inspection
 - (2) AMM 71-11-04/201, Fan Cowl Panels
 - (3) AMM 71-11-06/201, Core Cowl Panels
 - (4) AMM 72-33-02/801, Fan Exit Case and Vane Approved Repairs
 - (5) AMM 78-31-00/201, Thrust Reverser System
- B. Access
 - (1) Location Zones

411 No. 1 Engine (Left)

421 No. 2 Engine (Right)

EFFECTIVITY

4

7

6

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

72-407-01-1 PAGE 1 OF 17 DEC 22/07

AIRLINE CARD NO.

SAS BOEING
767
TASK CARD

MECH INSP

(2) Access Panels

413AL	Fan Cowl Panel (Left)
414AR	Fan Cowl Panel (Right)
415AL	Thrust Reverser (Left)
416AR	Thrust Reverser (Right)
417AL	Core Cowl Panel (Left)
418AR	Core Cowl Panel (Right)
423AL	Fan Cowl Panel (Left)
424AR	Fan Cowl Panel (Right)
425AL	Thrust Reverser (Left)
426AR	Thrust Reverser (Right)
427AL	Core Cowl Panel (Left)
428AR	Core Cowl Panel (Right)

- C. Prepare for the Inspection
 - (1) Attach the DO-NOT-OPERATE tags to the ENG START switch on the overhead panel, P5.

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).
- (3) Open the fan cowl panels (AMM 71-11-04/201).
- (4) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Open the thrust reversers (AMM 78-31-00/201).
- D. Procedure
 - (1) Visually compare the damage you find (on areas other than the vanes) to the damage limits in Table 601 (Fig. 601).

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

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AIRLINE CARD NO.

72-407-01-1

SAS

O	BOEING
	767
	TASK CARD

MECH INSP

(a) If you find damage that could cause a crack in a repair weld or a permitted dent, do a fluorescent pentrant inspection (FPI) with ultra high sensitivity penetrant (AMM 70-11-06/201).

	TABLE 601 INSPECTION OF AREAS OTHER THAN THE VANES						
Examine	Damage Limits	Necessary Procedure					
ON ENGINES WITHOUT PW SB 72-262; Lockwire: not there, loose, or broken	None are permitted	Repair the damaged lockwire immediately (AMM 72-33-02/801)					
ON ENGINES WITH PW SB 72-262; Nuts: not there, or loose	None are permitted	Replace the nuts that are not there and tighten the nuts that are loose (AMM 72-33-02/801).					
Flanges B1 and B2, damaged corners: Index 1	0.060 inch (1.542 mm), maximum, 2 locations 0.060 inch (1.524 mm), maximum	If the damage is less than the limits repair the flange in less than 50 hours. Damage that is more than the limits is not permitted.					
Index 3	This must not be less than ten times Index 2						

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

72-407-01-1 PAGE 3 OF 17 NOV 10/97

AIRLINE CARD NO.

72-407-01-1

TASK CARD

MECH INSP

	TABLE INSPECTION OF AREAS	E 601 OTHER THAN THE VANES			
Examine	Damage Limits	Necessary Procedure Damage that is more than the limits is not permitted.			
Circumferen- tial length of each incident	1.000 inch (25.400 mm) maximum				
Total Cir- cumferential length, all damage, on each flange	24.000 inches (609.600 mm) maximum	Damage that is more than the limits is not permitted.			
Repair Welds: cracks in the weld	None are permitted	If there are cracks, you must remove the case and vane assembly.			
Other Areas: Dents	0.050 inch (1.270 mm) in depth, maximum, with rounded bottoms	Dents that are less than the limits and have no cracks, are permitted. I the dent is more than the limits, yo must remove the case and vane assemb			
Pits	0.010 inch (0.254 mm) in depth, maximum	You must make the area smooth. If the damage is worse than the limits, you must remove the case and vane assembly.			
Cracks in the Inner Case	None are permitted	If there are cracks in the inner cas you must remove the case and vane assembly.			
Cracks in the Outer Case	1.000 inch (25.400 mm) maximum circumferential length 0.500 inch (12.700 mm) maximum axial length	The engine can continue to operate for 20 more hours, if the crack has all 3 of the conditions that follow: 1) The crack is less than the limits. 2) You correctly stop drill the crack with a 0.0625 inch (0.1581 mm) dri 3) The crack does not go into a flangor boss.			

EFFECTIVITY	CHECK/INSP
	N72-33-02-6A

72-407-01-1

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

- (2) See if the vane damage is local and isolated.
 - (a) If the vane damage is not local and isolated, you must replace the vane immediately.
- (3) Visually compare the damage you find on the vanes with the limits in Table 602 (Fig. 602).

TABLE 602 INSPECTION OF THE FAN EXIT VANES								
Examine Damage Limits Necessary Procedure (AMM 72-33-02/801)								
Area A: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.						
	More than 0.100 inch (2.54 mm) in depth.*	Remove the damaged fan exit vane in less than 50 hours.						

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

72-407-01-1 PAGE 5 OF 17 NOV 10/97

AIRLINE CARD NO.

TASK CARD

MECH INSP

TABLE 602 INSPECTION OF THE FAN EXIT VANES						
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801				
Area B: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than hours and at the next "A" check for deterioration. If there is deterio tion, repair the vane with a small patch in less than 50 hours.				
	Between 0.100-0.375 inch (2.5-9.5 mm) in depth.*	Repair the vane with a large patch less than 50 hours.				
	More than 0.375 inch (9.525 mm) in depth.*	Remove the damaged vane immediately				
Radial Length	More than 1.000 inch (2.540 mm) in length	Remove the damaged vane immediately				
Quantity of damage on each vane	No damage is more than 0.100 inch (2.540 mm) in depth.*	No procedure is necessary.				
	4 maximum if the chord depth is 0.100 - 0.150 inch (2.54 - 3.81 mm). This counts against the 4 allowed above.	Repair the vane in less than 50 hou				
	More than one with a chord depth that is more than 0.150 inch (3.81 mm).	Remove the vane in less than 50 hour				

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TASK CARD

AIRLINE CARD NO.

MECH INSP

TABLE 602 INSPECTION OF THE FAN EXIT VANES						
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)				
Area C for: Nicks, dents,	Broken composite fibers	Repair the vane with a small patch in less than 50 hours. Remove or replace the vane in less than 50 hours.				
pits, and chips	More than 0.030 inch (0.762 mm) in depth					
	More than 0.300 inch (7.620 mm) in width or height	Remove or replace the vane in less than 50 hours.				
Area D for: Damage that decreased	Chord decreased by not more than 0.150 inch (3.810 mm)	Repair the vane with a small patch i less than 50 hours.				
the chord length	Chord decreased by more than 0.150 inch (3.810 mm)	Remove or replace the vane in less than 50 hours.				
Delamination	More than 1.0 square inch (645. square mm) in area	Remove or replace the vane in less than 50 hours.				
Delamination/ Missing Wire Mesh	Full axial width both sides up to full span.	Replace leading edge up to full span.				

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767 TASK CARD

MECH INSP

AIRLINE CARD NO.

TABLE 602 INSPECTION OF THE FAN EXIT VANES					
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)			
Erosion of Leading edge (Wire mesh Configurat- ion)	Any location on leading edge up to 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace wire mesh leading edge up to full span.			
		Replace with metal leading edge or wire mesh up to full span.			
	Any location on leading edge beyound 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace vane.			
Metal Leading Edge for dents and impact only (Visually inspect only)	Dents or other damage up to 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth and within 3.0 inches (76.200 mm) of either base (Area A).	Serviceable			
	Dents beyound 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth, and located beyound 3.0 inches (76.200 mm) of either Base (Area A)	Remove the vane at next shop visit			

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1.	Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
	Metal Leading Edge disbonded from vane (Visually inspect only)	Visual inspection shows leading edge is seperated from vane airfoil on one side only, and separation does not extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Serviceable
		Visual inspection shows leading edge is separated from vane airfoil on one side only, and separation does extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Remove the vane at next shop visit
		Visual inspections shows leading edge is separated from vane airfoil on both sides at the same location or is completely missing.	Remove vane immediately (see Note)
	remove not be if the	ed (operator's discretion e repairable later. The s	ervice with leading edge missing or O. Vane will quickly erode and may ame time and spacing limits apply as any vanes missing leading edges must

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AIRLINE CARD NO.

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	===	E 602 HE FAN EXIT VANES		
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)		
Metal leading edge contains crack(s). (Visually inspect only)	Any degree of cracking whether isolated or interconnected	Remove vane immediately (See Note)		
Vanes that are not there	3 vanes maximum 4-5 vanes can be gone, if no more than 3 are adjacent and there is not less than 5 vanes between each area of vanes that are gone	Install a replacement vane during the subsequent removal of the engine. Immediately remove broken pieces. Install replacement vanes in less than 50 hours. If there are more vanes gone than the limit, install replacement vanes immediately.		

(4) Visually compare the damage you find on the vane platforms with the limits in Table 603 (Fig. 603).

		E 603 VANE PLATFORMS
Damage	Damage Limits	Necessary Procedure
Cracks	The base platform section on one side of a crack in Area A makes a continuous surface with the section on the other side of the crack	Serviceable

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

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AIRLINE CARD NO.

			TABLE 603 NSPECTION OF VANE PLATFORMS	
	Damage	Damage Limits The base platform section on one side of a crack in Area A is 0.100 inch (2.540 mm), or more, above the section on the other side of the crack.	Necessary Procedure Serviceable	
			base platform could lengthen to cause there, it is permitted to remove the	
		A crack in the structural section of the vane base makes the vane loose more, above the section on the other side of the crack.	Repair the vane base immediately (AMM 72-33-02/801)	
		15 cracks in each mold	No procedure is necessary.	
		More than 15 cracks in one mold	Remove the vane within 50 hours (AMM $72-33-02/801$).	
•		Cracks in the mold with spaces between the vane base or the vane	Remove the vane within 50 hours (AMM 72-33-02/801).	
•		Cracks in the mold that cause damage to the attachment holes in the vane bases	Remove the vane within 50 hours (AMM $72-33-02/801$).	

AIRLINE CARD NO.

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TABLE 603 INSPECTION OF VANE PLATFORMS			
Damage Piece or pieces not there	Damage Limits In Area A	Necessary Procedure Engine can continue to operate until the next scheduled maintenance visit with inspection at 2A check intervals for vane security and furthe damage	
		Any amount can be missing on one singl vane.	
		A total of 5 vanes can have this condition. Any two vanes with this condition must be separated by one undamaged vane.	
Piece of the inner diameter or	In Area A	Repair the vane or base immediately (AMM 72-33-02/801).	
outer diameter vane base that is not	In the structural section of the base which makes the vane loose.	Remove the vane within 50 hours (AMM 72-33-02/801).	

E. Put the Airplane back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Close the thrust reversers (AMM 78-31-00/201).
- (2) Close the core cowl panels (AMM 71-11-06/201).

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

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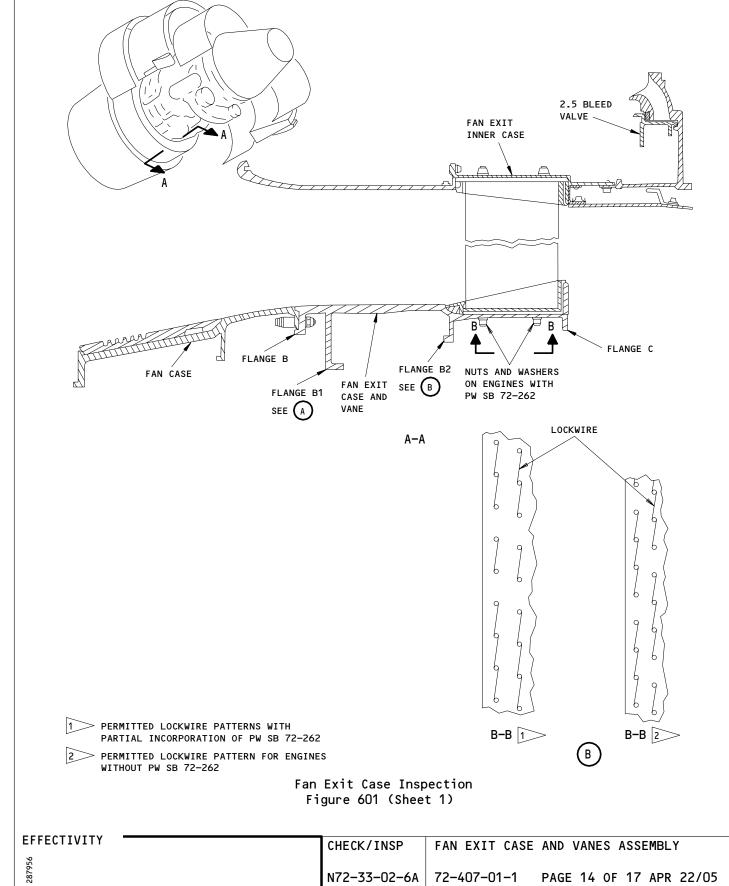
767 TASK CARD

MECH INSP (3) Close the fan cowl panels (AMM 71-11-04/201). (4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201). (5) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel. **EFFECTIVITY**

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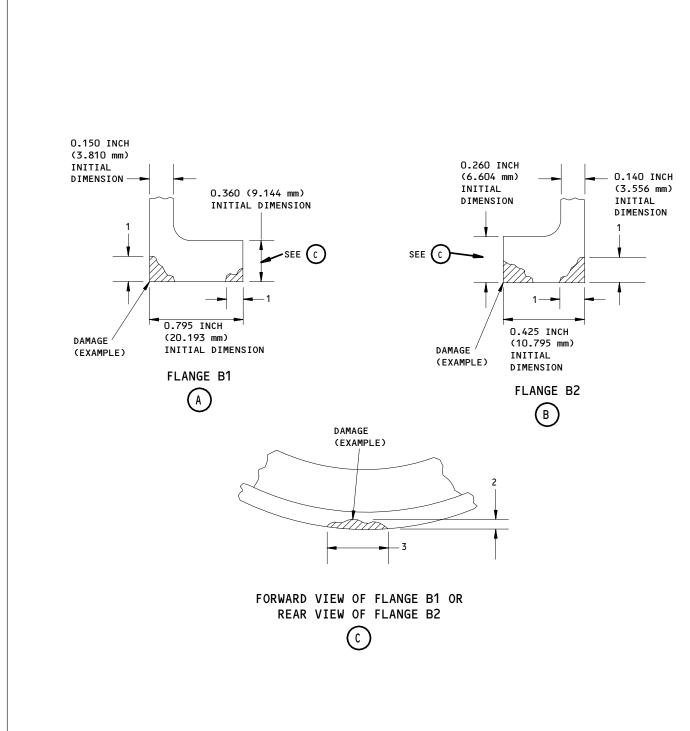


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Fan Exit Case Inspection Figure 601 (Sheet 2)

CHECK/INSP FAN EXIT CASE A

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FAN EXIT CASE AND VANES ASSEMBLY

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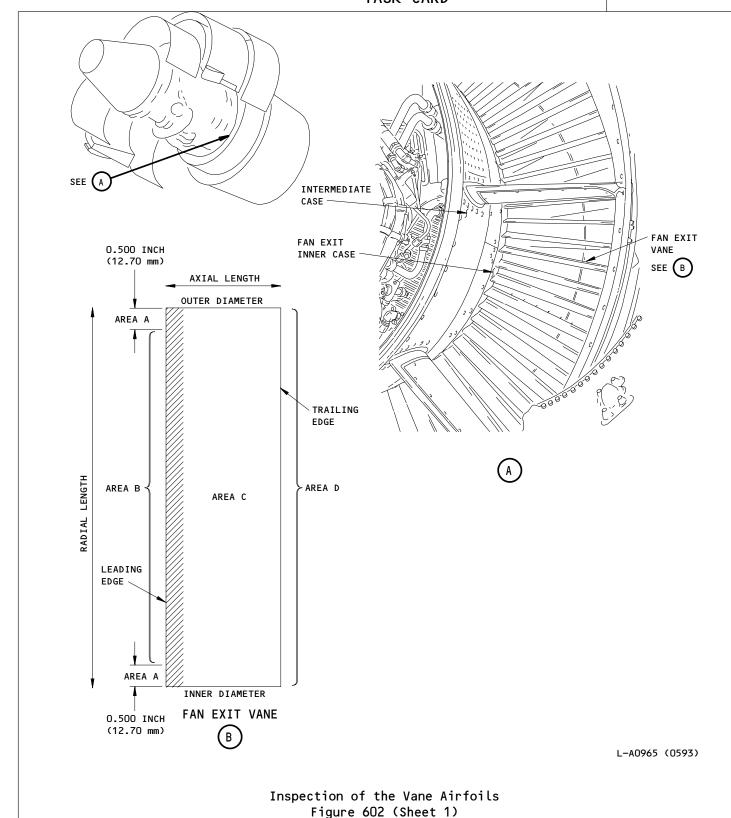
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FAN EXIT CASE AND VANES ASSEMBLY

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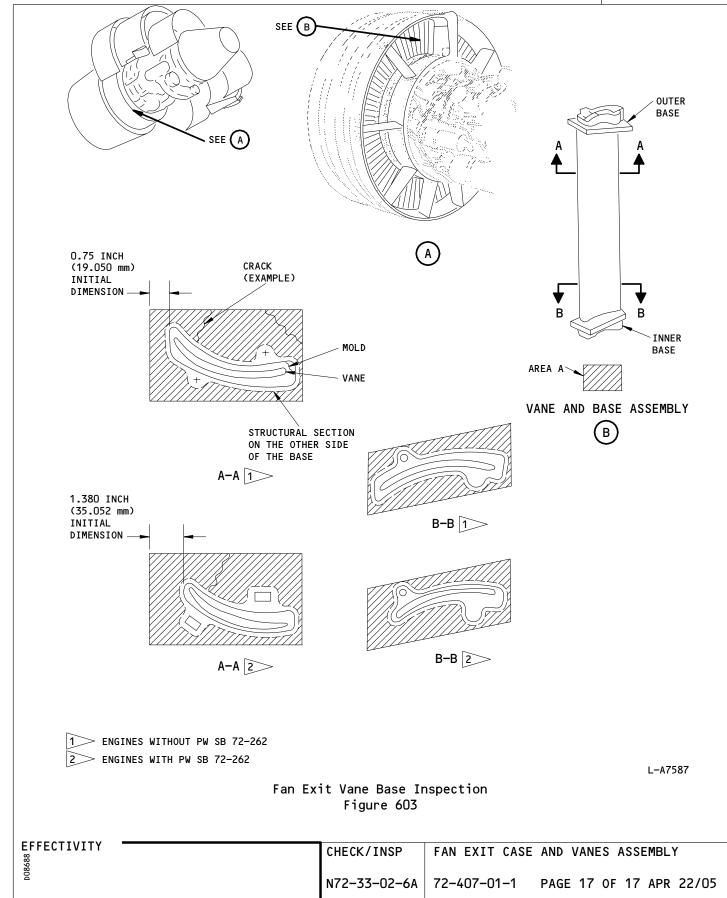
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WORK AREA

SKILL



BOEING CARD NO. 72-407-01-2

AIRLINE CARD NO.

TASK CARD

MPD

PHASE

ENGIN ENGINE 2 01000 HRS 10202 011 DEC 22/07

TASK TITLE STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

CHECK/INSP FAN EXIT CASE AND VANES ASSEMBLY
ALL 4000

INTERVAL

ZONES ACCESS PANELS

421 423AL 424AR 425AL 426AR 427AL 428AR

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FAN EXIT CASE AND VANES ASSEMBLY FOR CONDITION AND SECURITY.

N72-33-02-6A

1. Examine the Fan Exit Case and Vane

RELATED TASK

- A. References
 - (1) AMM 70-11-06/201, Flourescent Penetrant Inspection
 - (2) AMM 71-11-04/201, Fan Cowl Panels
 - (3) AMM 71-11-06/201, Core Cowl Panels
 - (4) AMM 72-33-02/801, Fan Exit Case and Vane Approved Repairs
 - (5) AMM 78-31-00/201, Thrust Reverser System
- B. Access
 - (1) Location Zones

411 No. 1 Engine (Left)

421 No. 2 Engine (Right)

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

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AIRLINE CARD NO.



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(2) Access Panels

413AL	Fan Cowl Panel (Left)
414AR	Fan Cowl Panel (Right)
415AL	Thrust Reverser (Left)
416AR	Thrust Reverser (Right)
417AL	Core Cowl Panel (Left)
418AR	Core Cowl Panel (Right)
423AL	Fan Cowl Panel (Left)
424AR	Fan Cowl Panel (Right)
425AL	Thrust Reverser (Left)
426AR	Thrust Reverser (Right)
427AL	Core Cowl Panel (Left)
428AR	Core Cowl Panel (Right)

- C. Prepare for the Inspection
 - (1) Attach the DO-NOT-OPERATE tags to the ENG START switch on the overhead panel, P5.

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).
- (3) Open the fan cowl panels (AMM 71-11-04/201).
- (4) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (5) Open the thrust reversers (AMM 78-31-00/201).
- D. Procedure
 - (1) Visually compare the damage you find (on areas other than the vanes) to the damage limits in Table 601 (Fig. 601).

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

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(a) If you find damage that could cause a crack in a repair weld or a permitted dent, do a fluorescent pentrant inspection (FPI) with ultra high sensitivity penetrant (AMM 70-11-06/201).

		E 601 OTHER THAN THE VANES		
Examine	Damage Limits	Necessary Procedure		
ON ENGINES WITHOUT PW SB 72-262; Lockwire: not there, loose, or broken	None are permitted	Repair the damaged lockwire immediately (AMM 72-33-02/801)		
ON ENGINES WITH PW SB 72-262; Nuts: not there, or loose	None are permitted	Replace the nuts that are not there and tighten the nuts that are loose (AMM 72-33-02/801).		
Flanges B1 and B2, damaged corners: Index 1	0.060 inch (1.542 mm), maximum, 2 locations 0.060 inch (1.524 mm), maximum	If the damage is less than the limit repair the flange in less than 50 hours. Damage that is more than the limits is not permitted.		
Index 3	This must not be less than ten times Index 2			

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TASK CARD

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AIRLINE CARD NO.

		TABLE INSPECTION OF AREAS	E 601 OTHER THAN THE VANES
	Examine	Damage Limits	Necessary Procedure
	Circumferen- tial length of each incident	1.000 inch (25.400 mm) maximum	Damage that is more than the limits is not permitted.
	Total Cir- cumferential length, all damage, on each flange	24.000 inches (609.600 mm) maximum	Damage that is more than the limits is not permitted.
	Repair Welds: cracks in the weld	None are permitted	If there are cracks, you must remove the case and vane assembly.
	Other Areas: Dents	0.050 inch (1.270 mm) in depth, maximum, with rounded bottoms	Dents that are less than the limits and have no cracks, are permitted. If the dent is more than the limits, you must remove the case and vane assembly
	Pits	0.010 inch (0.254 mm) in depth, maximum	You must make the area smooth. If the damage is worse than the limits, you must remove the case and vane assembly.
	Cracks in the Inner Case	None are permitted	If there are cracks in the inner case, you must remove the case and vane assembly.
	Cracks in the Outer Case	1.000 inch (25.400 mm) maximum circumferential length 0.500 inch (12.700 mm) maximum axial length	The engine can continue to operate for 20 more hours, if the crack has all 3 of the conditions that follow: 1) The crack is less than the limits. 2) You correctly stop drill the crack with a 0.0625 inch (0.1581 mm) drill 3) The crack does not go into a flange or boss.

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AIRLINE CARD NO.

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- (2) See if the vane damage is local and isolated.
 - (a) If the vane damage is not local and isolated, you must replace the vane immediately.
- (3) Visually compare the damage you find on the vanes with the limits in Table 602 (Fig. 602).

1 -						
	TABLE 602 INSPECTION OF THE FAN EXIT VANES					
	Examine Damage Limits		Necessary Procedure (AMM 72-33-02/801)			
	Area A: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.			
		More than 0.100 inch (2.54 mm) in depth.*	Remove the damaged fan exit vane in less than 50 hours.			

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

N72-33-02-6A

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AIRLINE CARD NO.

TABLE 602 INSPECTION OF THE FAN EXIT VANES						
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)				
Area B: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.				
	Between 0.100-0.375 inch (2.5-9.5 mm) in depth.*	Repair the vane with a large patch in less than 50 hours.				
	More than 0.375 inch (9.525 mm) in depth.*	Remove the damaged vane immediately.				
Radial Length	More than 1.000 inch (2.540 mm) in length	Remove the damaged vane immediately.				
Quantity of damage on each	No damage is more than 0.100 inch (2.540 mm) in depth.*	No procedure is necessary.				
vane	4 maximum if the chord depth is 0.100 - 0.150 inch (2.54 - 3.81 mm). This counts against the 4 allowed above.	Repair the vane in less than 50 hours.				
	More than one with a chord depth that is more than 0.150 inch (3.81 mm).	Remove the vane in less than 50 hours.				

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TABLE 602 INSPECTION OF THE FAN EXIT VANES				
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)		
Area C for: Nicks, dents,	Broken composite fibers	Repair the vane with a small patch in less than 50 hours.		
pits, and chips	More than 0.030 inch (0.762 mm) in depth	Remove or replace the vane in less than 50 hours.		
	More than 0.300 inch (7.620 mm) in width or height	Remove or replace the vane in less than 50 hours.		
Area D for: Damage that decreased	Chord decreased by not more than 0.150 inch (3.810 mm)	Repair the vane with a small patch in less than 50 hours.		
the chord length	Chord decreased by more than 0.150 inch (3.810 mm)	Remove or replace the vane in less than 50 hours.		
Delamination More than 1.0 square inch (645. square mm) in area		Remove or replace the vane in less than 50 hours.		
Delamination/ Full axial width Missing both sides Wire Mesh up to full span.		Replace leading edge up to full span.		

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

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AIRLINE CARD NO.

	TABLE 602 INSPECTION OF THE FAN EXIT VANES									
	Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)							
	Erosion of Leading edge (Wire mesh Configurat- ion)	Any location on leading edge up to 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace wire mesh leading edge up to full span.							
			Replace with metal leading edge or wire mesh up to full span.							
		Any location on leading edge beyound 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace vane.							
	Metal Leading Edge for dents and impact only (Visually inspect only)	Dents or other damage up to 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth and within 3.0 inches (76.200 mm) of either base (Area A).	Serviceable							
		Dents beyound 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth, and located beyound 3.0 inches (76.200 mm) of either Base (Area A)	Remove the vane at next shop visit							

EFFECTIVITY

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FAN EXIT CASE AND VANES ASSEMBLY

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AIRLINE CARD NO.



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Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)					
Metal Leading Edge disbonded from vane (Visually inspect only)	Visual inspection shows leading edge is seperated from vane airfoil on one side only, and separation does not extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Serviceable					
	Visual inspection shows leading edge is separated from vane airfoil on one side only, and separation does extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Remove the vane at next shop visit					
	Visual inspections shows leading edge is separated from vane airfoil on both sides at the same location or is completely missing.	Remove vane immediately (see Note)					
*NOTE: It is	acceptable to continue so	ervice with leading edge missing or					
not be if the	e repairable later. The sa). Vane will quickly erode and may ame time and spacing limits apply as any vanes missing leading edges must					

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3 vanes maximum

4-5 vanes can be gone,

if no more than 3 are

adjacent and there is

not less than 5 vanes

between each area of

vanes that are gone

MECH INSP

inspect only)

Vanes that

are not

there

TABLE 602 INSPECTION OF THE FAN EXIT VANES Examine Damage Limits Necessary Procedure (AMM 72-33-02/801) Any degree of Remove vane immediately Metal leading cracking whether (See Note) isolated or edge contains interconnected crack(s). (Visually

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(4) Visually compare the damage you find on the vane platforms with the limits in Table 603 (Fig. 603).

TABLE 603 INSPECTION OF VANE PLATFORMS											
Damage	Damage Limits	Necessary Procedure									
Cracks	The base platform section on one side of a crack in Area A makes a continuous surface with the section on the other side of the crack	Serviceable									

EFFECTIVITY

CHECK/INSP

FAN EXIT CASE AND VANES ASSEMBLY

Install a replacement vane during the

subsequent removal of the engine.

Immediately remove broken pieces.

Install replacement vanes in less

than 50 hours. If there are more

replacement vanes immediately.

vanes gone than the limit, install

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TABLE 603 INSPECTION OF VANE PLATFORMS									
Damage	Damage Limits The base platform section on one side of a crack in Area A is 0.100 inch (2.540 mm), or more, above the section on the other side of the crack.	Necessary Procedure Serviceable							
	* NOTE: If a crack in the	base platform could lengthen to cause							
	a piece to not be piece.	there, it is permitted to remove the							
	A crack in the structural section of the vane base makes the vane loose more, above the section on the other side of the crack.	Repair the vane base immediately (AMM 72-33-02/801)							
	15 cracks in each mold	No procedure is necessary.							
	More than 15 cracks in one mold	Remove the vane within 50 hours (AMM $72-33-02/801$).							
	Cracks in the mold with spaces between the vane base or the vane	Remove the vane within 50 hours (AMM 72-33-02/801).							
	Cracks in the mold that cause damage to the attachment holes in the vane bases	Remove the vane within 50 hours (AMM 72-33-02/801).							

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		TABLE 603 INSPECTION OF VANE PLATFORMS									
		Damage Piece or pieces not there	Damage Limits In Area A	Necessary Procedure Engine can continue to operate until the next scheduled maintenance visit with inspection at 2A check intervals for vane security and further damage							
				Any amount can be missing on one single vane. A total of 5 vanes can have this condition. Any two vanes with this							
				condition must be separated by one undamaged vane.							
		Piece of the inner diameter or	In Area A	Repair the vane or base immediately (AMM 72-33-02/801).							
		outer diameter vane base that is not there.	In the structural section of the base which makes the vane loose.	Remove the vane within 50 hours (AMM 72-33-02/801).							
		,	* NOTE: Foam baffles unde	r the base platform can be missing in							
			any amount.								

E. Put the Airplane back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Close the thrust reversers (AMM 78-31-00/201).
- (2) Close the core cowl panels (AMM 71-11-06/201).

EFFECTIVITY	CHECK/INSP	FAN EXIT CASE	AND VANES ASSEMBLY
	N72-33-02-6A	72-407-01-2	PAGE 12 OF 17 APR 22/05

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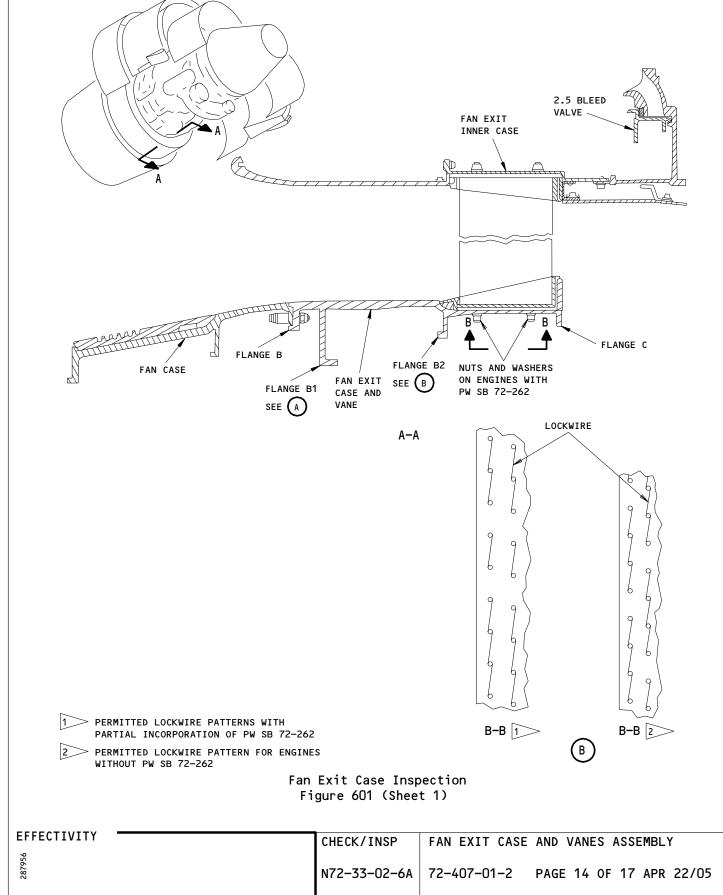
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		(3) Close the fan cowl panels (AMM 71-11-04/201).	
		(4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).	
		(5) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.	
EFF	ECTI	VITY CHECK/INSP FAN FYIT CASE AND VANES ASSEMBLY	

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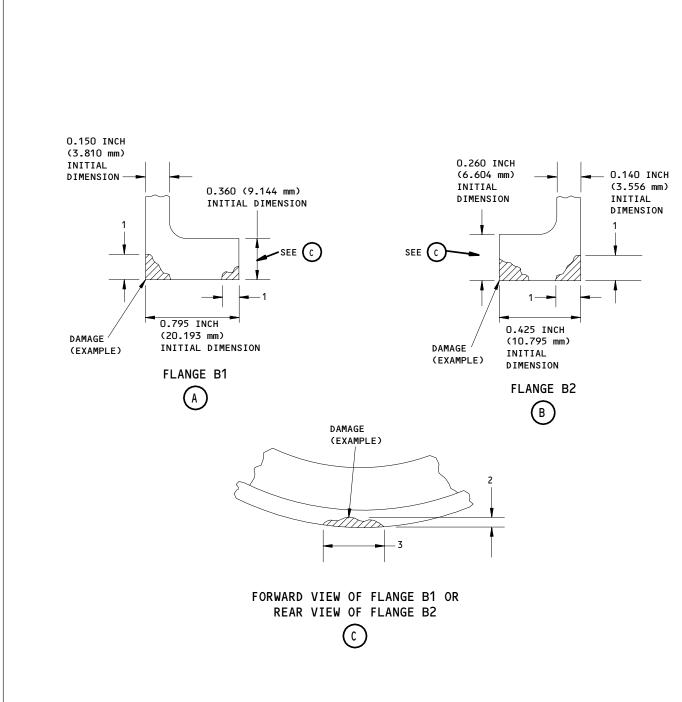
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Fan Exit Case Inspection Figure 601 (Sheet 2)

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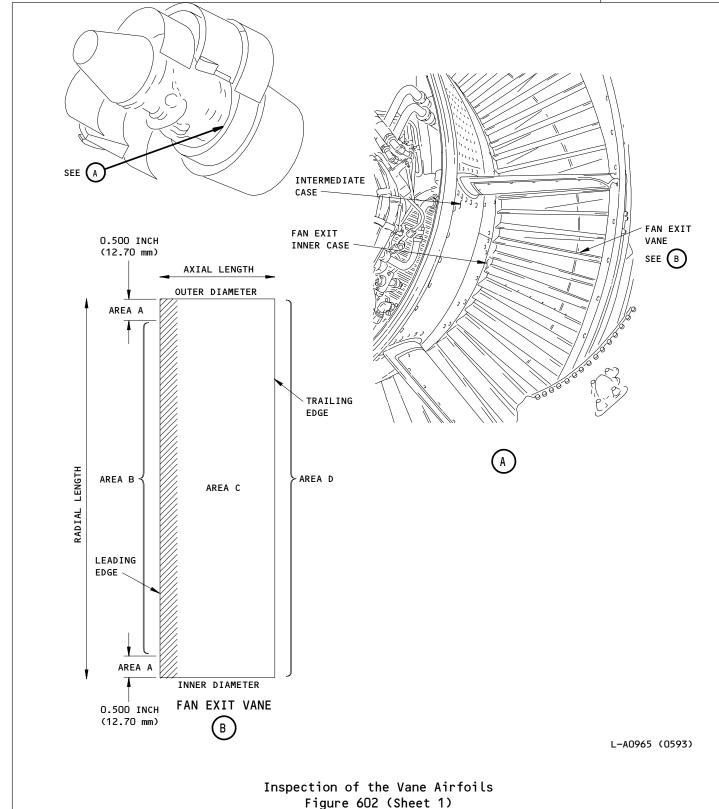
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FAN EXIT CASE AND VANES ASSEMBLY

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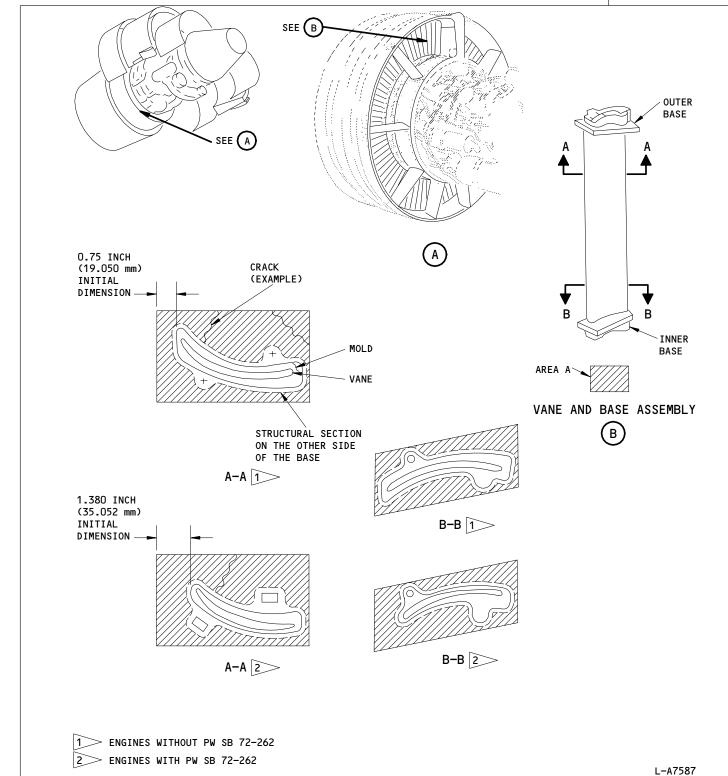
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Fan Exit Vane Base Inspection Figure 603

CHECK/INSP FAN EXIT CASE AND VANES ASSEMBLY
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N72-33-02-A

72-407-02-1 PAGE 1 OF 1 DEC 22/07

ST	ATION												BOE	ING CARD NO.
TA	IL NO.						OEII		72				72-4	07-02-2
			S	AS			767						AIRL	INE CARD NO.
	DATE			<i>,</i> , ,		T	ASK CAR	RD.						
SKILL	WORK ARI	EA	REL	ATED TASK			INTERV	AL				PHASE	MPD REV	TASK CARD REVISION
ENGIN		2				01000	HRS					0202	005	DEC 22/07
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761				7L3/\L	757	71K 4E3	AL 420A	····						
MECH INSF	D												١	IPD ITEM NUMBER
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	CONDIT					.,,		,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				0	0 01 //
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STATION	
TAIL NO.	1
DATE	\dashv



BOEING CARD NO. 72-407-03-1

AIRLINE CARD NO.

1	DATE		TASK CARD									
SKILL	WORK AREA RE		LATED TASK			INTERVAL		PHASE		MPD TASK C REV REVISI		
ENGIN	ENGINE	1 01000 HRS					10202	005	DEC	22/07		
CHECK	K/INSP	ENGINE 1 FAN EXIT LINER SEGMENTS					STRUCTURAL ILLUSTRATION R	EFERENCE	APPLICAB AIRPLANE		LITY ENGINE	
CITEON				TANK EXII		COLGIILITIO		ACCEPTED DANIELO		ALL		4000
411	ZONES			415AL	416AF	₹		ACCESS PANELS				

MECH INSP

VISUALLY CHECK THE ENGINE 1 FAN EXIT LINER SEGMENTS FOR CONDITION AND SECURITY.

N72-34-03-6A

MPD ITEM NUMBER

- 1. <u>Inner Rear Liner Segments Inspection</u>
 - A. References
 - (1) AMM 71-11-04/201, Fan Cowl Panel
 - (2) AMM 71-11-06/201, Core Cowl Panel
 - (3) AMM 72-34-03/401, Fan Exit Liner Segments (Inner Rear)
 - (4) AMM 72-34-03/801, Fan Exit Liner Segments (Inner Rear)
 - (5) AMM 78-31-00/201, Thrust Reverser Opening
 - Do the Inspection of the Inner Rear Liner Sements.

DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE WARNING: THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).
- (2) Open the fan cowl panel (AMM 71-11-04/201).
- (3) Open the core cowl panel (AMM 71-11-06/201).

EFFECTIVITY CHECK/INSP ENGINE 1 FAN EXIT LINER SEGMENTS N72-34-03-6A 72-407-03-1 PAGE 1 OF 5 DEC 22/07

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72-407-03-1

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Open the thrust reverser (AMM 78-31-00/201).
- (5) Compare the damage that you find on the outer liner segments with the limits in Table 601, 602, and 603 (Fig. 601).
 - (a) If you find a liner segment or a fastener that is loose, make sure that the torque is not less than 15 pound-inches (1.695 newton-meters).

NOTE: ENGINES POST-PW-SB 72-107 use bolts here, and ENGINES PRE-PW-SB 72-107 use screws here.

INSPECTION FOR PARTS THAT A	RE NOT THERE OR ARE LOOSE, AND FOR RUBBER SEALS Table 601
AREA: CONDITION OBSERVED	NECESSARY PROCEDURE
Liner Segment: all or part of the liner that is not there or loose	Replace or tighten the liner as applicable within 50 hours of operation (AMM 72-34-03/401).
Screws/Bolts: One or more that is loose or not there	Replace or tighten the screws as applicable within 50 hours of operation.
Rubber Seals: Cuts or tears on the ends of the seals	Repair the rubber seal within 50 hours of operation (AMM 72-34-03/801).

(b) If the damage to the liner segment, referred to in Table 602, is less than the limits, no procedure is necessary.

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN EXIT LINER SEGMENTS

N72-34-03-6A

72-407-03-1 PAGE 2 OF 5 DEC 22/01

72-407-03-1

AIRLINE CARD NO.

AS FOR TASK CARD

MECH INSP

	INSPECTION FOR NICKS, DENTS, AND OTHER SURFACE DAMAGE Table 602	
CONDITION OBSERVED	DAMAGE LIMITS	NECESSARY PROCEDURE
Nicks and Gouges	More than 1.000 inch (25.400 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.80 mm) apart from other damage, or there are more than five (5) nicks and gouges.	Replace before the subsequent flight.
Dents with Rounded Bottoms	More than 0.030 inch (0.762 mm) in depth or on more than 10% of the surface area	Replace Within 50 hours
Cracks	More than 1.000 inch (25.400 mm) in length or less than 0.500 inch (12.700 mm) from the center of an attachment rivet screw or bolt	Replace Within 50 hours
Areas of broken or fuzzy stray fibers	Between 1.000 and 2.500 inches (25 and 63.5 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.800 mm) from other damage	Replace Within 50 hours
	More than 2.500 inches (63.500 mm) in width or length	Replace Immediately
Holes or Punctures	None Permitted.	Replace in 50 hours
No Bond of a Wire Cloth Patch	More than 0.500 inch (12.700 mm) in length or width.	Replace in 50 hours
Leading Edge Erosion	More than 0.500 inch (12.700 mm) in length or width (of a dull or rough surface finish, visible fibers)	Replace in 50 hours

EFFECTIVITY	CHECK/INSP	ENGINE 1 FAN	EXIT L	INER S	SEGMENTS
	N72-34-03-6A	72-407-03-1	PAGE	3 OF	5 DEC 22/01

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72-407-03-1

AIRLINE CARD NO.

TASK CARD

MECH INSP

INSPECTION FOR DELAMINATION Table 603						
DELAMINATION DIMENSION	EXAMINE AFTER EACH 50 HOURS	REPLACE WITHIN 50 HOURS	REPLACE BEFORE YOU OPERATE THE ENGINE			
Width or Length	Not more than 1.000 inch (25.400 mm)	Between 1.000-2.500 inches (25-64 mm)	More than 2.500 inches (63.500 mm)			
Depth	Mot more than 0.030 inch (0.762 mm)	More than 0.030 inch (0.762 mm)				
Distance from other damage		Less than 2.000 inches (50.800 mm)				

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the thrust reverser (AMM 78-31-00/201).
- (7) Close the core cowl panel (AMM 71-11-06/201).
- (8) Close the fan cowl panel (AMM 71-11-04/201).
- (9) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN EXIT LINER SEGMENTS

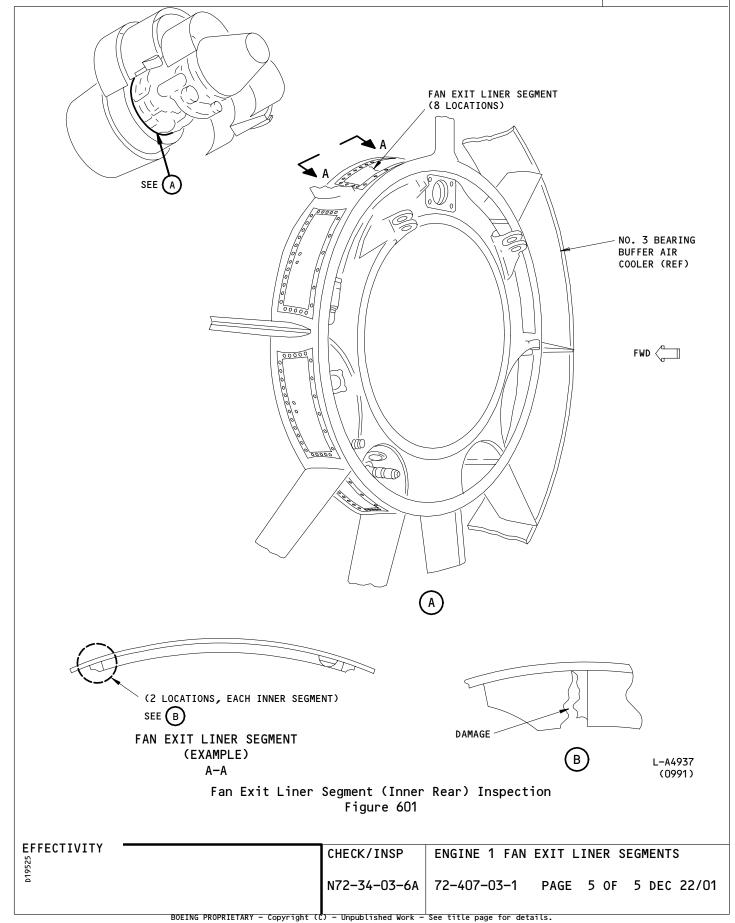
N72-34-03-6A 72-407-03-1 PAGE 4 OF 5 DEC 22/01

AIRLINE CARD NO.

72-407-03-1

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BOEING 767 TASK CARD



STATION	
TAIL NO.	
DATE	

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BOEING CARD NO. 72-407-03-2

AIRLINE CARD NO.

TASK CARD

MPD

WORK AREA RELATED TASK INTERVAL SKILL PHASE REV REVISION 005 01000 HRS DEC 22/07 ENGIN | ENGINE 2 10202 APPLICABILITY
ANF ENGINE STRUCTURAL ILLUSTRATION REFERENCE AIRPLANE

CHECK/INSP **ENGINE 2 FAN EXIT LINER SEGMENTS** ALL 4000

ZONES ACCESS PANELS

425AL 426AR

MPD ITEM NUMBER MECH INSP

VISUALLY CHECK THE ENGINE 2 FAN EXIT LINER SEGMENTS FOR CONDITION AND SECURITY.

N72-34-03-6A

1. <u>Inner Rear Liner Segments Inspection</u>

- References Α.
 - (1) AMM 71-11-04/201, Fan Cowl Panel
 - (2) AMM 71-11-06/201, Core Cowl Panel
 - (3) AMM 72-34-03/401, Fan Exit Liner Segments (Inner Rear)
 - (4) AMM 72-34-03/801, Fan Exit Liner Segments (Inner Rear)
 - (5) AMM 78-31-00/201, Thrust Reverser Opening
- Do the Inspection of the Inner Rear Liner Sements.

DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE WARNING: THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).
- (2) Open the fan cowl panel (AMM 71-11-04/201).
- (3) Open the core cowl panel (AMM 71-11-06/201).

EFFECTIVITY CHECK/INSP ENGINE 2 FAN EXIT LINER SEGMENTS N72-34-03-6A 72-407-03-2 PAGE 1 OF 5 DEC 22/07

72-407-03-2

AIRLINE CARD NO.



MECH INSP

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Open the thrust reverser (AMM 78-31-00/201).
- (5) Compare the damage that you find on the outer liner segments with the limits in Table 601, 602, and 603 (Fig. 601).
 - (a) If you find a liner segment or a fastener that is loose, make sure that the torque is not less than 15 pound-inches (1.695 newton-meters).

NOTE: ENGINES POST-PW-SB 72-107 use bolts here, and ENGINES PRE-PW-SB 72-107 use screws here.

INSPECTION FOR PARTS THAT A	RE NOT THERE OR ARE LOOSE, AND FOR RUBBER SEALS Table 601
AREA: CONDITION OBSERVED	NECESSARY PROCEDURE
Liner Segment: all or part of the liner that is not there or loose	Replace or tighten the liner as applicable within 50 hours of operation (AMM 72-34-03/401).
Screws/Bolts: One or more that is loose or not there	Replace or tighten the screws as applicable within 50 hours of operation.
Rubber Seals: Cuts or tears on the ends of the seals	Repair the rubber seal within 50 hours of operation (AMM 72-34-03/801).

(b) If the damage to the liner segment, referred to in Table 602, is less than the limits, no procedure is necessary.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN EXIT LINER SEGMENTS

N72-34-03-6A

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AIRLINE CARD NO.

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767
TASK CARD

MECH INSP

	INSPECTION FOR NICKS, DENTS, AND OTHER SURFACE DAMAGE Table 602					
CONDITION OBSERVED	DAMAGE LIMITS	NECESSARY PROCEDURE				
Nicks and Gouges	More than 1.000 inch (25.400 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.80 mm) apart from other damage, or there are more than five (5) nicks and gouges.	Replace before the subsequent flight.				
Dents with Rounded Bottoms	More than 0.030 inch (0.762 mm) in depth or on more than 10% of the surface area	Replace Within 50 hours				
Cracks	More than 1.000 inch (25.400 mm) in length or less than 0.500 inch (12.700 mm) from the center of an attachment rivet screw or bolt	Replace Within 50 hours				
Areas of broken or fuzzy stray fibers	Between 1.000 and 2.500 inches (25 and 63.5 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.800 mm) from other damage	Replace Within 50 hours				
	More than 2.500 inches (63.500 mm) in width or length	Replace Immediately				
Holes or Punctures	None Permitted.	Replace in 50 hours				
No Bond of a Wire Cloth Patch	More than 0.500 inch (12.700 mm) in length or width.	Replace in 50 hours				
Leading Edge Erosion	More than 0.500 inch (12.700 mm) in length or width (of a dull or rough surface finish, visible fibers)	Replace in 50 hours				

EFFECTIVITY	CHECK/INSP	ENGINE 2 FAN	EXIT L	INER S	SEGMENTS
	N72-34-03-6A	72-407-03-2	PAGE	3 OF	5 DEC 22/01

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AIRLINE CARD NO.

TASK CARD

MECH INSP

INSPECTION FOR DELAMINATION Table 603						
DELAMINATION DIMENSION	EXAMINE AFTER EACH 50 HOURS	REPLACE WITHIN 50 HOURS	REPLACE BEFORE YOU OPERATE THE ENGINE			
Width or Length	Not more than 1.000 inch (25.400 mm)	Between 1.000-2.500 inches (25-64 mm)	More than 2.500 inches (63.500 mm)			
Depth	Mot more than 0.030 inch (0.762 mm)	More than 0.030 inch (0.762 mm)				
Distance from other damage		Less than 2.000 inches (50.800 mm)				

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (6) Close the thrust reverser (AMM 78-31-00/201).
- (7) Close the core cowl panel (AMM 71-11-06/201).
- (8) Close the fan cowl panel (AMM 71-11-04/201).
- (9) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN EXIT LINER SEGMENTS

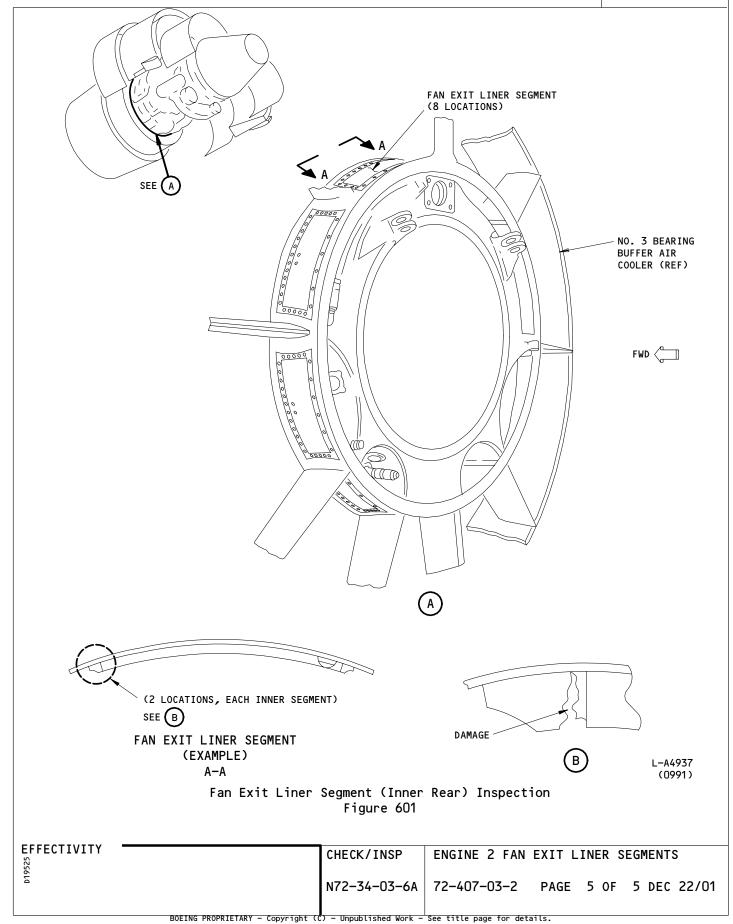
N72-34-03-6A 72-407-03-2 PAGE 4 OF 5 DEC 22/01

72-407-03-2

AIRLINE CARD NO.

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767 TASK CARD



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318	TION			-/				
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D/	ATE	_	SAS 8	767			AIRI	LINE CARD NO.
				TASK CAR	lD .			
SKILL	WORK AF	REA	RELATED TASK	INTERVA	AL .	PHASE	MPD REV	TASK CARD REVISION
SHOPS				LIFE LMT	NOTE	99XXX	005	AUG 22/99
TASH REPLA		חםר נ	TITLE COMPRESSOR COMP		STRUCTURAL ILLUSTRATION RE	EFERENCE	AIRPLAN	PPLICABILITY E ENGINE
KLFLA	CL	III C	COMPRESSOR COMP	ONLIVIS			ALL	4000
411	zones 421				ACCESS PANELS			
								MPD ITEM NUMBER
MECH INSP								
					STAGE DISC, BOTH		N72-3	0-00-c
				OTATING AIRSEALS. CTURER'S LIFE LIMI	T (SEE ENGINE			
	INCLK	V/\L 1401	MANUAL, CH		T COLL ENGINE			

EFFECTIVITY

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BOEING CARD NO. 72-410-C1-1

AIRLINE CARD NO.

TASK CARD

MPD

WORK AREA RELATED TASK INTERVAL SKILL PHASE REVISION REV 00250 CYC 005 AUG 22/09 ENGIN | ENGINE 1 10101 APPLICABILITY
AIRPLANE ENGINE TITLE STRUCTURAL ILLUSTRATION REFERENCE

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES ALL 4000

ACCESS PANELS ZONES

411 417AL 418AR

MPD ITEM NUMBER MECH INSP

BORESCOPE CHECK THE ENGINE 1 INNER AND OUTER COMBUSTION CHAMBER ASSEMBLIES AND FIRST STAGE TURBINE NOZZLE GUIDE VANES (CLUSTERS).

72-00-00-6A N72-00-00-6A

N72-00-00-6B N72-00-00-6C

BORESCOPE CHECK THE ENGINE 1 STAGE 1 AND STAGE 2 HIGH PRESSURE TURBINE BLADES.

72-00-00-6B

BORESCOPE CHECK THE ENGINE 1 STAGE 3 LOW PRESSURE TURBINE NOZZLE GUIDE VANES.

72-00-00-6C

NOTE: THE FIELD-OF-VIEW PROVIDED BY INSPECTION PORT AP10 DOES NOT ALLOW A FULL VIEW OF ALL THIRD STAGE NOZZLE GUIDE VANES. HOWEVER, THOSE VANES WHICH CAN BE VIEWED ARE SUFFICIENT TO EVALUATE THE CONDITION OF THE THIRD STAGE NOZZLE GUIDE VANES.

ENGINE GASPATH - INSPECTION/CHECK

1. Prepare for the Borescope Inspection

General Α.

- (1) This procedure gives the equipment and steps that are necessary to prepare for the borescope inspections.
- (2) Refer to Fig. 605A for installation data on each borescope access port.
- Equipment

EFFECTIVITY BORESCOPE COMBUSTION LINER/HP AND LP TURBINES N72-00-00-6A 72-410-C1-1 PAGE 1 OF 87 APR 22/03

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TASK CARD

AIRLINE CARD NO.

			TASK CARD	
MECH	INSP			
		(1)	Borescope Inspection Equipment - Specification CTE 6181, Support Equipment Engineering, Pratt & Whitney Commercial Products Division, 400 Main Street, East Hartford, CT 06108, USA MS 11803	
			NOTE: Specification CTE 6181 gives the equipment and related hardware, such as power source, light cables, adapter, that is required during borescope inspections. This specification sets the quality and functional standards for this equipment. This borescope equipment is recommended:	
			(a) Low magnification rigid borescope AP2-7, 9 (optional for THRU FAN) (0.270 inch/6.8 mm barrel dia max)	
			(b) High magnification rigid borescope AP8, 11 (0.444 inch/11.3 mm barrel dia max)	
			(c) Flexible borescope AP-1, THRU FAN (optional for AP2-7) (0.270 inch/6.8 mm cable dia max)	
		(2)	Optional borescope equipment and sizes that make the operation of the borescope better and easier are also shown in CTE 6181. This equipment includes clamps that hold the borescope in position and optical video equipment. This video equipment helps you see and make a videotape record of the borescope procedure for a second, more full, examination.	
			(a) Borescope equipment is available with rigid or flexible probes that have different operation lengths and fields of vision. You can use closed circuit television with some borescopes.	

72-410-c1-1

AIRLINE CARD NO.

		TASK CARD	
MECH	INSP		
		(b) The equipment that follows is from Olympus Corp., IFD 4 Nevada Drive, Lake Success, NY 11042, and agrees with specification CTE 7181. You can get equivalent equipment from American Cystoscope Makers Inc., Industrial Division, 300 Stillwater Ave., Stamford, CT 06902, or Richard Wolf Medical Instruments Corp., 7046 Lydon Ave., Rosemont, IL 60018.	
		 Rigid Borescope - Olympus Model C080-048-090-50, 8 mm diameter, 48 cm operation length, lateral view, 50-degree field of view 	
		2) Rigid Borescope - Olympus Model C100-037-090-50, 10 mm diameter, 37 cm operation length, lateral view, 50-degree field of view	
		3) Eyepiece, right angle adapter – Olympus Model KMR-90/4	
		4) Flexible Borescope — Olympus Model IF8D3-15, 8 mm diameter, 125 cm operation length, direct view, 40-degree field of view	
		5) Distal right angle adapter - Olympus Model IF8D3-A4OS, 40-degree field of view	
		6) Light Source - Olympus Model ILK-4, 150 Watt Halogen	
		7) Light Cable - Olympus Model 2950B High Intensity Light Cable, 6 mm diameter, 72 inch length	
		8) Flexible Borescope - Olympus Model PF27-7, 6.8 mm (0.27 inch) diameter, 130 cm operation length, direct view, 70-degree field of view, Articulating Tip	

EFFECTIVITY

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AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

- 9) Flexible Borescope Olympus Model IF6D3-20, 6 mm diameter, 180 cm operation length, direct view, 65-degree field of view, Articulating Tip
- (c) This television system is available from Westinghouse Electronic Tube Division, P.O. Box 284, Elmira, New York 14902
 - Mobile Video Inspection Equipment Model No. M616W, closed circuit television camera system.

NOTE: This video inspection equipment is used with Richard Wolf Corp. Borescope Models FIB 750, and FIB 760.

- C. Reference
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 78-31-00/201, Thrust Reverser System
- D. Access
 - (1) Location Zones

411 No. 1 Power Plant 421 No. 2 Power Plant

- E. Prepare for the Borescope Inspection.
 - (1) Get the applicable borescope equipment.
 - (2) For the left engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a D0-N0T-CLOSE tag:
 - (a) 11D19, ENGINE START CONT L
 - (3) For the right engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A

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4

72-410-c1-1

AIRLINE CARD NO.

SAS BOEING 767 TASK CARD

MECH INSP

- (a) 11D2O, ENGINE START CONT R
- (4) Open the fan cowl panel (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).
- (6) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(7) Open the thrust reverser (AMM 78-31-00/201).

Combustion Chamber Inspection

- A. General
 - (1) This inspection is the visual check of the Combustion Chamber: the inner and outer combustion chamber assemblies, the bulkhead, and the heatshield of the fuel injector guide.
 - (2) The limits given in this section will help you know if the engine can continue to operate or if you must remove and repair it.
- B. Equipment
 - (1) AP-8 Gasket PWA 673049 (6 are necessary)
- C. Consumable Materials
 - (1) D00137 Engine Oil PWA 521B
 - (2) D00244 Antiseize compound, high temperature Silver Goop
- D. Do the Combustion Chamber Inspection

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A 72-410-C1-1 PAGE 5 OF 87 AUG 22/09

72-410-C1-1

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE—IN—SERVICE LIMITS.

- (1) Do this procedure: Prepare for the Borescope Inspection.
- (2) Remove the plugs from the AP-8 access ports of the combustion chamber; refer to Fig. 605 and 611 for access port locations and borescope data.

NOTE: Six AP-8 plugs are on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from top center of engine when you look forward.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(3) Put the borescope through each access port to examine the condition of the combustion chamber.

<u>NOTE</u>: The borescope goes into the combustion chamber through the dilution air holes.

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A

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AIRLINE CARD NO.

				TASK CARD	
MECH	INSP				
		(4)		the damage as identified in Figs. 612, 613, and e-in-service limits shown in Table 602A and Table	
				The frequency of the regular time inspection that to in the tables is from our Maintenance Planning The frequency of the decreased time inspection is the frequency of the regular time inspection. In words, the interval between decreased time inspections.	Document. two times other
				The maximum limits for the regular time and decree inspections were calculated to have the qualities follow: - During usual conditions of operation, permitted not become unsatisfactory before the time for to subsequent applicable inspection. - Usually, higher damage limits are permitted for decreased time inspection because that inspection more frequently. - Damage and deterioration in some areas change to performance of the engine very quickly, which mushigher limit (for the decreased time inspection possible. For damage in these areas, the limit	that damage will he the on is done he takes a) not s for the
				decreased and regular time inspections are equal ese conditions of damage occur in the inner and ombustion chamber assembly:	
			1)	The conditions that follow are examples of burn released material:	ed or
				a) Discolored or distorted areas on the louver	
				b) Areas where louver lip material is gone bec much heat.	ause of too
			2)	An axial series of damaged louvers, in which ear has burned or released material, is an example stripe.	
			3)	A hole is because of too much heat and goes ful the combustion chamber wall; holes frequently o burned stripes.	

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(b) Refer to Figs. 615, 616, and 617 to help you keep a record of the damage in the combustion chamber assembly.

NOTE: You can write on copies of these figures to keep a record of the damage.

(c) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

	Table 602A						
	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS						
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
Open Holes that are Burned Through	Four open holes in each assembly.	Six open holes in each assembly.					
	ole is 0.500 inch (12.700 mm) n).						
	There must be at least 6 inches (152.400 mm) of material without damage, between each hole.						
Burned Marks, Distortion, Louver Lip Material that is gone, or Burned Stripes	All quantities of burned marks, distortion, or louver lip material that is gone Damage that is on no more than three adjacent louvers. This is the indication of the start of a burned stripe.	Axial burned stripes that are on more than three adjacent louvers. Refer to the applicable condition found in this table for limits for opened hole size, crack length, and the connection of cracks.					
Burned Areas, Areas where Material is Gone, or a Deterioration of the Surface Layer.	All quantities. NOTE: If you find much damage or many areas where the material is gone, examine the turbine airfoils for damage. This is most important for the last louver.						

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			Table 602A		
			INNER AND OUTER COMBUSTION CHAN CONTINUE-IN-SE	MBER ASSSEMBLY (Except Bulkhead) ERVICE LIMITS	
		CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION	
		Nicks in the Surface Layer, Thermal Barrier Ceramic Layer that is Gone.	All quantities. NOTE: When the surface layer is gone, the rate of the Combustion Chamber deterioration will increase.		
		Louver Gap Decrease and and Burned Marks	All quantities. NOTE: Too much of a Gap decrea downstream deterioration	ase will increase the rate of n in the Combustion Chamber.	
		Bends, Buckles, or Distortion on the Louvers	All quantities.		

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MECH INSP Table 602A INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS PERMITTED WITH DECREASED CONDITION PERMITTED WITH REGULAR **FOUND** TIME INSPECTION TIME INSPECTION NOTE: For axial cracks that enter a combustor, dilution, or ignition hole, the diameter of the manufactured hole does not need to be added to determine the crack length until the crack is seen exiting from the opposite side of the hole. **Axial Cracks** All cracks that are not more Maximum of 2 cracks every 6.0 than 0.75 inch (19.050 mm) in inch (152.040 mm) of louver that are confined to length. Cracks that go commaterial. Cracks must be one louver pletely across the No.9 louver separated circumferentially of the Outer Burner Lining, by 0.75 inch (19.05 mm). if there is not less than 2.5 inches (63.5 mm) circumferen-Maximum of 3 cracks every 6.0 inches (152.40 mm) of tially between each one. louver material. Cracks must Cracks can completely traverse be separated one louver, but must be circumferentially by 1.5 separated circumferentially inches (38.10 mm). by 6.0 inches (152.40 mm) minimum.

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MECH INSP Table 602A INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS PERMITTED WITH REGULAR PERMITTED WITH DECREASED CONDITION **FOUND** TIME INSPECTION TIME INSPECTION NOTE: If these limits are exceeded, contact Pratt & Whitney for recommendation. Cracks can completely traverse on Outer Burner Lining No. 9 (rear most) louver, but must be separated circumferentially by 2.5 inches (63.5 mm) minimum. On the Outer Burner Lining (rear most), the minimum separation of cracks must be 2.5 inches (63.5 mm). NOTE: An individual crack is a crack only to one louver.

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	Table 602A						
		INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS					
	CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
	Continuous Axial Cracks that go completely through one or more louvers	Axial cracks which go completely through more than one louver must be inspected with the decreased time inspection.	Axial cracks which go comp- pletely through more than three adjacent louvers are no permitted.				
		If you can do an inspection of the outside diameter (OD) (cold side) of the louver, and the cracks do not go through the edge which overlaps the adjacent louver, the limits for axial cracks that are confined to one louver are applicable. If you cannot do an inspection of the OD (cold side) of the louver, the limits for continuous axial cracks that go through one or more louvers are applicable.					
		cracks do not go through cracks are classified as					
		and/or louver wall deformate than 0.060 inch (1.524 mm). Limits apply for two louver 2. Three louver crack, if the match is more than 0.060 incommon cracks must be apart circums (508.0 mm) minimum. 3. Four louver crack, if the match three adjacent louvers mm) wide but less than 0.150	asured crack width on each of than 0.060 inch (1.524 mm) wide ion or surface mismatch is more individual crack separation cracks. The asured crack width on each of its more than 0.060 inch (1.524 deformation, or surface mister (1.524 mm). Three louver ferentially by 20.0 inches The asured crack width on each of its more than 0.060 inch (1.524 mm), and/or louver is match is more than 0.060 inch (50 inch (3.810 mm). Engine				

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MECH INSP Table 602A INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS CONDITION PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** TIME INSPECTION TIME INSPECTION 4. More than three louver crack, engine must be removed immediately if the crack is greater than 0.150 inch (3.810)mm) wide, and/or louver wall deformation or surface mismatch is greater than 0.150 inch (3.810 mm). NOTE: Use the hot side inspection only if the cold side inspection is not easy to access. This inspection is used to find if a knuckle between two louvers is cracked by looking through a borescope at the inner (hot side) surface of the burner rather than the outer (cold side) surface. To use the inner surface inspection method, all cracked surfaces in the continuous axial crack must be inspected for crack width. If all louver cracks are less than 0.060 inch (1.524 mm), it must be classified as individual cracks. If one after the other have crack width more than 0.060 inch (1.524 mm), it should be classified as a three louver crack. Cracks are classified as an individual axial cracks, if they do not go through the louver knuckle area. An outer (cold side) inspection is an optional to check, if the cracks go through the louver knuckle area. If the outer (cold side) inspection shows that the cracks do not go through the louver knuckle area, then the cracks are classified as individual axial cracks. As a burn streak becomes longer, the louver metal can NOTE: burn, twist and fall away from the surface of the louver. This can cause axial cracks on one louver to continue to burn onto the adjacent louvers, but they are not always easily seen. That is why it is best to do an OD (cold side) inspection, if you can.

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	Table 602A						
		INNER AND OUTER COMBUSTION CHAN CONTINUE-IN-SE	•				
	CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
	Circumferen- tial Cracks	Only ones in the lip area are permitted. The maximum length for the lip cracks is 2.0 inches (50.800 mm).					
Connection of Axial and Circumferen- tial Cracks		The only ones permitted are in Louver lip material that is gor axial and cicumferential cracks The maximum length of circumfer inches (50.8 mm).	ne because of the connection o s is permitted.				
	Connection of Axial Cracks and Burned Holes	Refer to the limits for Burn-Th Cracks. Include width of burn length.	- .				

Table 602B								
	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS							
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION						

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MECH INSP Table 602B COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS PERMITTED WITH REGULAR PERMITTED WITH DECREASED CONDITION **FOUND** TIME INSPECTION TIME INSPECTION Cracks in the All quantities of cracks that are not more than 0.25 inch Heatshield (6.350 mm) in length are permitted. Face Cracks that go through other cracks are not permitted. No more than two cracks that No more than four cracks that are longer than 0.25 inch are longer that 0.25 inch (6.350 mm) are permitted. (6.350 mm) are permitted. Two cracks on each face are Four cracks on each face are permitted to go across each permitted to go across each face, but must be apart by face, but must be apart by at least 30°. at least 45°. Erosion of All quantities of erosion of All quantities of erosion of the Inner the Inner Heatshield Face are the Inner Heatshield Face are permitted. But, the impingpermitted. But, no more than Heatshield ment holes must not be open four impingment holes on each Face (Material that to view from the rear. Heatshield are permitted to is Gone) be open to view from the rear. Erosion of the Outer Heatshield Face Erosion Erosion which extends from the Outer Heatmust not extend more than perimeter of the Outer Heatshield Face 0.200 inch (5.080 mm) from shield Face must be more than (Material that the perimeter of the Outer 0.025 inch (0.635 mm) away Heatshield Face. from the Inner Heatshield Face is Gone) **Burned Marks** Heatshield burned marks and distortion are permitted if the and Distortion Heatshield face erosion and cracks are in the limits. The in the Heatdamage that results to the Bulkhead must not be worse than shield Face the given limits. Heatshield All quantities. Surface Layer that is Gone NOTE: When the surface layer is gone, the rate of the Heatshield deterioration will increase.

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Table 602B							
	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS						
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
Fuel Injector Endcap Segments	All quantities of Cracks or end permitted. If pieces of the er examine the 1st- and 2nd-stage	ndcap segments are not there,					
Radial Cracks in the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted.	See Figure 614.					
Circumferen- tial Cracks along the OD of the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted.	See Figure 614.					
End Cap Material Liberation of the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. NOTE: Liberation is segments br						
Burned Marks, Erosion, Distortion, or Holes in the Bulkhead	None are permitted. IMMEDIATELY REMOVE THE ENGINE						

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	Table 602B					
	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS					
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
Radial or Circumferen- tial Bulkhead Cracks	Individual radial or circumfe- rential cracks that are less than 0.50 inch (12.7 mm) in length are permitted.	All quantities that are less than 0.50 inch (12.700 mm) in length are permitted. Cracks must be separated circumferentially by 6.00 inches (152.40 mm) of sound material.				

- (5) Install the access port plugs AP-8 (Fig. 605A):
 - (a) Apply some Silver Goop to the plug threads.
 - (b) Install the plugs with new AP-8 Gaskets.
 - (c) Tighten the AP-8 plugs to 40-50 pound-inches (4.519-5.649 newton-meter).
 - (d) Install lockwire on the AP-8 plug.
- (6) Do this procedure: Put the Airplane Back to its Usual Condition.
- 3. <u>HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection</u>
 - A. Equipment
 - (1) AP-8 Gasket PWA 673049 (6 are necessary)
 - (2) AP-9 Washer PWA 584977
 - (3) AP-10 Gasket PWA ST1146-08
 - (4) AP-11 Gasket PWA ST1142-012
 - (5) Puller PWA 86081 (For removal of the AP-10 Plug Assembly)

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- (6) Packing Preform AS3209-121
- (7) Guide Tube PWA 86411, AP-8 Port (for the flexible borescope)
- B. Consumable Materials
 - (1) D50124 Anti-seize paste (P06-054)
 - (2) B00299 Petroleum Solvent P-D-680, Type I
 - (3) D00244 Antiseize compound, high temperature Silver Goop
- C. Do the HPT Blade and Vane Inspection.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE—IN—SERVICE LIMITS.

- (1) Do this procedure: Prepare for the Borescope Inspection.
- (2) Remove the plugs from the access ports AP-8 and AP-9 of the combustion chamber; refer to Fig. 605 and 611 for the access port locations and borescope data.

NOTE: The six AP-8 plugs are found on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from the top center of the engine from the rear view.

- (a) Measure the shaft diameter of the AP-9 borescope plug.
- (b) If the minimum dimension of the shaft diameter is less than 0.100 inch (2.54 mm), you must replace the AP-9 borescope plug.
- (3) Do the steps that follow to install the PWA Guide Tube:
 - (a) Put the PWA 86411 Guide Tube through the diffuser case access port at the AP-8 location with the tip pointed forward (in the direction of the front of the engine).

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		(b)	Turn and adjust the tube until the flexible borescope, when it is installed, will point in the direction of the 1st-stage NGV (nozzle guide vanes).
		(c)	Lock the Guide Tube in the correct position with the compression nut.
		trans	ve the plugs from the access ports AP-10 of the HPT LPT sition duct, and the optional AP-11 for the HPT; refer to 605 and Fig. 618 for the access port locations and borescope
		(a)	Remove the two bolts which attach the AP-10 plug assembly to the case (Fig. 618).
		(b)	Use a PWA 86081 Puller to remove, as an assembly, the AP-10 plug, the plug stop, the spring washer, and the cotter pin.
			NOTE: Do not remove the cotter pin.
		(c)	Discard the gasket.
		(d)	ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157); remove the borescope plug and gasket from the No. 3 TVBCA (turbine vane cooling air) duct AP-11 as follows:
			 Remove the bolts that attach the borescope plug to the aft elbow of the No. 3 TVBCA duct.
			2) Remove the plug with two jackscrews, if it is necessary.
			3) Discard the packing.
		<u>WARNING</u> :	DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.
		<u>CAUTION</u> :	MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

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(5) Put the borescope through each access port to examine the condition of the HPT blades and vanes.

NOTE: It is possible that you will find local cracks and spalling on the HPT duct segments during the borescope inspection.

These local cracks and spalling are permitted, if the engine is within EGT limits.

(6) Compare the damage as identified in Figs. 619, 620, and 621 with the continue-in-service limits shown in Tables 603, 604 and 605.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:

- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done

more frequently.

- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.
- (a) Use these limits when you examine the 1st-stage HPT vanes:
 - If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.
 - 2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

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13	ST-STAGE HPT V	/ANES CONTINUE-IN-SERVICE L1 Table 603	[MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS TIME INSPECTION
Nicks and Dents	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	Nicks and rounded bottom dents that are not more than 0.125 inch (3.175 mm) in length or diameter. NOTE: If the view angle determined, the mandent depth is 0.031	cimum nick and round bot
	Trailing Edge	No more than two nicks or dents that are apart by at least 0.750 inch (19.050 mm). Five Vanes Maximum on each engine. If more than the above interval inspection	Remove engine in 5 cyc

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	1:	ST-STAGE HPT \	VANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)				
	CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS TIME INSPECTION				
	Damaged or Missing Thermal Barrier Coating	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of chipped coating, coating loss, checking, crazed or cracked thermal barrier coating.					
			NOTE: If a large quantity of thermal barrier coating is missing, (gone), and the vane is operated for a long time, it is possible that the vane cannot be repaired at overhaul. The vane base metal can become burned and eroded					
	Burned Areas, Erosion	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of burning and erosion as long as it is not burned completely through the wall.					
	Material Break- through or Burn- through	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	One material breakthrough or burnthrough with an open area (material that is not there) up to but not more than 0.157 inch (3.988 mm) diameter or 0.019 sq-in. (12.258 sq-mm).					

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15T	-STAGE HPT	/ANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603					
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
		One material breakthrough or burnthrough and with an open area (material that is not there) more than 0.157 inch (3.988 mm) but less than 0.300 inch (7.620 mm) diameter or up to 0.070 sq-in. (45.161 sq-mm) maximum.	Permitted for 300 cycle reduced inspection interval.				
		A maximum of five vanes for each engine with one material breakthrough or burnthrough, and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or 0.196 sq-inch (126.451 mm) into the internal cavity.	Permitted for 300 cycle reduced inspection interval.				
		More than 5 vanes with one material breakthrough or burnthrough and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or up to 0.196 sq-inch (126.451 sq-mm) maximum.	Permitted for 150 cycle reduced inspection interval.				

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1	SI-SIAGE HPI	VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603				
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASE TIME INSPECTION			
		For leading edge burn- through more than 0.500 inch (12.700 mm) diameter: No limit on the number of vanes with leading edge burnthrough up to 1.614 inch (40.996 mm) maximum radial length that does not go axially more than the first row of concave side cooling holes and does not go axially more than the second row of convex side cooling holes is permitted if there is no burning on the internal baffle.	Permitted for 50 cycle reduced inspection interval.			
		Vane baffle burned through.	Not permitted. Remove and Replace.			
		More than the above internal inspection limits.	Remove engine in 5 cyc maximum or less.			
Material Break- through or Burn- through	Concave Side Trailing Edge	Burnthrough less than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.				

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	···	Table 603	
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS TIME INSPECTION
		Burnthrough more than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.	Permitted for 300 cycl reduced inspection interval.
		Burnthrough up to 0.512 inch (13.005 mm) forward of the rear two rows of cooling holes and up to 1.575 inches (40.005 mm) maximum width.	Permitted for 150 cycl reduced inspection interval.
		Burnthrough more than 0.511 inch (12.979 mm) forward of the rear two rows of cooling holes, or is more than 1.575 inches (40.005 mm) in width, or if the internal baffle is burned through.	Remove engine in 5 cyc maximum or less.
	Convex Side Trailing Edge	Burnthrough less than 50 percent span from the trailing edge to the rear cooling holes.	
		Burnthrough more than 50 percent span from the trailing edge to the rear cooling holes.	Permitted for 150 cycl reduced inspection interval.
		Burnthrough is forward of the rear cooling holes.	Remove engine in 5 cyc or less.

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15	ST-STAGE HPT \	VANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASE TIME INSPECTION
Cracks, Leading (Axial Edge and Surface Radial)		No limit on the quantity of tight cracks. Closed loop cracks are not permitted.	
		One crack in each vane starting at the ID or OD platform, to a maximum height of 0.500 inch (12.700 mm).	
		A maximum of 3 cracks in each vane which go to a concave or convex airfoil cooling hole. Closed loop cracks are not permitted.	
		Two cracks in each vane starting at the ID or OD platforms, to a maximum height of 0.750 inch (19.050 mm).	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycl maximum or less.

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		Table 603			
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS TIME INSPECTION		
	Concave Airfoil Surface	burned or eroded to inch (1.270 mm) mus	radial cracks 0.157 inch are permitted. o cracks are		
		A maximum of three axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group are permitted.			
		One of the above three axial cracks can go for-ward or rearward to the next cooling hole group or from the trailing edge through the rear cooling hole group to the next cooling hole group.			

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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION No limit on the quantity Permitted for 300 cycle of axial cracks reduced inspection that go from one cooling interval. hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group if the cracks do not form a closed loop. Radial cracks that go from the ID or OD platform to the concave

airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.

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MECH	INSP				
		1s	T-STAGE HPT \	/ANES CONTINUE-IN-SERVICE Li Table 603	IMITS (Figure 619)
		CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
				Radial cracks that go from the ID or OD plat-form to the concave airfoil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	Permitted for 300 cycle reduced inspection interval.
				Three radial cracks maximum to 0.500 inch (12.700 mm) maximum length are permitted.	
				No limit on the quantity of radial cracks to 0.800 inch (20.320 mm) length.	Permitted for 300 cycle reduced inspection interval.

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CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		A crack can intersect with another crack except for cracks that start at the ID or OD platform. The maximum length for either crack leg is 0.400 inch (10.160 mm). The intersection of platform cracks with airfoil cracks is not permitted.	
		An intersecting crack with a leg more than 0.400 inch (10.160 mm) and less than 0.800 inch (20.320 mm) except for cracks that start at the the ID or OD platform. The intersection of platform cracks with airfoil cracks is not permitted. length.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

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CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASE TIME INSPECTION
	Convex Airfoil Surface	burned or eroded to inch (1.270 mm) mus	ngth of a crack that has o a width more than 0.050 ot be identified as a hol o burnthrough limits appl
		Three axial cracks maximum to 0.500 inch (12.700 mm) maximum length except as follows: One of the three axial cracks can traverse from the trailing edge for a maximum distance of 0.750 inch (19.050).	
		Six axial cracks maximum to 0.800 inch (20.320 mm) maximum length except as follows: One of the six axial cracks can traverse from the trailing edge for a maximum distance of 1.300 inches (33.020 mm), or to the last row of cooling holes.	Permitted for 300 cycle reduced inspection interval.
		One axial crack from the trailing edge to a maxi-mum of 1.181 inches (29.997 mm).	

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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION One axial crack from the Permitted for 300 trailing edge more than cycle reduced inspection 1.181 inches (29.997 mm) interval. to 2.362 inches (59.995 mm) maximum is permitted. Three radial cracks to 0.500 inch (12.700 mm) length. Permitted for 300 No limit on the quantity of radial cracks to 0.800 cycle reduced inspection inch (20.320 mm) maximum. interval. A crack can intersect with another crack except for cracks that start at the ID or OD platforms. The maximum length for either crack leg is 0.500 inch (12.700 mm). Intersection of platform cracks with airfoil cracks is not permitted. An intersecting crack Permitted for 300 with a leg more than cycle reduced inspection 0.500 inch (12.700 mm) interval. and less than 0.800 inch (20.320 mm) except for cracks that start at the ID or OD platform. Intersection of platform cracks is not permitted.

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		Table 603	···
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS TIME INSPECTION
		Radial cracks that go from the ID or OD platforms to the convex airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	
		Radial cracks that go from the ID or OD platform to the convex airfoil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm) are permitted. Cracks from a platform that go to the airairfoil surface cannot intersect other cracks on the airfoil surface.	Permitted for 300 cycl reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less

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1	ST-STAGE HPT N	/ANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	ID and OD Platform Surfaces (Buttresses)	burned or eroded to inch (1.270 mm) mus	ngth of a crack that has o a width of more than 0.05 of be identified as a hole. o burnthrough limits apply.
		Four cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Three of the cracks can be up to 0.700 inch (17.780 mm) long, and one crack can be of any length. These cracks can go to the airfoil concave surface to a height of 0.500 inch (12.70 mm).	

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COMPTERM		Table 603	DEDMITTER LITTLE SECTION
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Six cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Four of the cracks can be up to 0.700 inch (17.780 mm) long, and two of the cracks can be of any length. These cracks can go to the airfoil concave surface to a height of 0.800 inch (20.320 mm).	Permitted for 300 cycle reduced interval.
		Two cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.	
		Four cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.	Permitted for 300 cycle reduced inspection interval.

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FOUND AREA TIME INSPECTION TIME INSPECTION Two cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.	13	1-31AGE NP1	VANES CONTINUE-IN-SERVICE LI Table 603	THILIS (Figure 017)
than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge. Four cracks more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge. One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 0.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.0 inch (25.400 mm). No	11 1		1	PERMITTED WITH DECREASED TIME INSPECTION
O.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge. One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is O.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can inter- sect other cracks if the total length is less than 1.0 inch (25.400 mm). No			than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet	
each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is O.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can inter- sect other cracks if the total length is less than 1.0 inch (25.400 mm). No			0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to	-
in the leading edge fillet.			each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 0.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.0 inch (25.400 mm). No circumferential cracks in the leading edge	

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1s	T-STAGE HPT	VANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 1.000 inch (25.400 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.750 inches (44.450 mm).	Permitted for 300 cycle reduced inspection interval.
		One crack maximum in the ID or OD leading edge fillet radius surface that goes circumferentially around the leading edge to a length of 0.400 inch)10.160 mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		More than the above in- terval inspection limits.	Remove engine in 5 cycle

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

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(b) Use these limits when you examine the 1st-stage HPT blades:

NOTE: The first sign of corrosion on a blade is a circular stain or mark on the outer surface of the blade. A green to white and blue color stain is a sign of sulfidation corrosion.

NOTE: Blade erosion removes the surface layer which is for protection. This will quickly cause deterioration of the inner alloy.

NOTE: A sign of airfoil growth is when the length of the blade is increased and the perimeter of the middle is decreased.

- 1) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.
- 2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

		Table 604	
		1ST-STAGE CONTINUE-IN-S	HPT BLADE SERVICE LIMITS
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

		Table 604	
			HPT BLADE SERVICE LIMITS
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks and Dents NOTE: No crack that is with a	А	None	On each blade, one nick or dent that is no more than 0.08 inch (2.032 mm) in length or diameter.
nick or dent is permitted, unless it is, in the limits for Axial or Radial Cracks.	В	All Nicks or dents that are not more than 0.08 inch (2.032 mm) in length or diameter.	All nicks or dent that are not more than 0.125 inch (3.175 mm) in length or diameter.
Burned Areas NOTE: Burned areas that cause a decrease in the flow of cooling air is not permitted.	A, B, and C	Burned areas are not permitted.	Burned areas to a maximum of 0.750 inch (19.050 mm) in diameter or 0.422 square inch (285.0 square mm) in area. Leading edge burned areas to a maximum of 0.40 inch (10.160 mm) in diameter Or 0.126 square inch (81.0 square mm) in area.
Erosion damage on the surface layer.	A, B, and C	All amounts are Permitted.	All amounts are permitted.

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AIRLINE CARD NO.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604								
		1ST-STAGE CONTINUE-IN-S	HPT BLADE SERVICE LIMITS					
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
Axial or Radial Cracks NOTE: See the subsequent limits for open cracks. Material tears are the same as cracks.	A	None	One hole to hole crack of the leading edge only. No airfoil cracks. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.					
	В	All axial or radial cracks or hole to hole cracks at the tip or leading edge are permitted. No breakthrough or open areas. No intersecting cracks or imminent material liberation.	Axial or radial cracks on the leading edge, airfoil or tip area are permitted. Breakthrough to internal cavity with open area to breakthrough limit is permitted.					
		NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION.	NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OF IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5					
			CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.					

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604								
	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS							
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
Axial or Radial Cracks NOTE: See the subsequent cracks. Material tears are the same as cracks.	С	All quantities of platform edge cracks that do not go into the platform to airfoil fillet radius and do not have signs of platform curling.	All quantities of platform edge cracks that go into the platform to airfoil fillet radius UP TO 0.250 INCH (6.350 mm) RADIALLY PAST THE RADIUS INTO THE AIRFOIL. NOTE: REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED. PLATFORM CURL (BEND) IS NOT PERMITTED.					

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604							
		1ST-STAGE CONTINUE-IN-S	HPT BLADE SERVICE LIMITS				
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
Holes that are Broken or	Α	None is permitted. IMME	EDIATELY REMOVE THE ENGINE				
Burned through to the Internal Cavity	В	None	On each blade, one piece that is gone from the ti or one hole that is less than 0.125 square inch (81.0 square mm) in area No more than five blades with these holes on each rotor. NOTE: If the hole is more than the decreased time limits, but fully in area B, remove the engine within 50 cycles. If the hole goes outside of area B, remove the engine within 5 cycles or immediately.				
Bent Tip	В	A bent tip is permitted than other damage limits	if the damage is not wors				
Leading Edge Holes and Blocked Cooling Air Exit Slots in the Trailing Edge	A and B	Two leading edge holes (blocked trailing edge ex					
ı,		Two blocked holes on each blade.	All blocked holes if the damage is not worse than other damage limits.				

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604								
1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS								
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
Tip Rub or Plasma Spray Deterioration	В	All quantities, if it is not worn through to the internal cavity.						
Areas where the Blade Parent Material is Gone	A and B	None	None, but that which is in the limits for Broken or Burned Hole.					
Airfoil Growth	A and B	None IMMEDIATELY REMOVE THE ENGINE.						

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(c) PW4056 ENGINES PRE-PW-SB 72-466; Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

- 1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:
 - a) Examine the blades for bulges after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".
 - b) If you find a bulge, remove the engine within 25 cycles.

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2) If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

- a) Examine the blades for dark spots after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".
- b) If you find a bulge or a white spot in a dark spot, remove the engine within 25 cycles.

NOTE: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

- c) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, examine the engine each 20 cycles and remove the engine within 100 cycles.
- (d) PW4060 ENGINES PRE-PW-SB 72-466; Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

- 1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:
 - a) Examine the blades for bulges after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.
 - b) After the 1,900th cycle, examine the blades for bulges each 125 cycles.

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- c) If you find a bulge before the 1,500th cycle, examine the engine for worse damage each 50 cycles.
- d) If you find a bulge after the 1,500th cycle, remove the engine within 25 cycles.
- If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

- a) Examine the blades for dark spots after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.
- b) If you find a white spot in a dark spot after the 1,500th cycle, remove the engine within 25 cycles.

NOTE: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

- c) After the 1,900th cycle, examine the blades for bulges each 125 cycles.
- d) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, remove the engine within 25 cycles.
- e) If you find a bulge remove the engine within 10 cycles.
- Insert the borescope through the port and examine the HPT 2nd-stage blades as follows.
 - 1) Look for signs of nicks, dents, cracks, tip damage, erosion, coating loss, liberated materials, bent tip, tip rub, airfoil growth, blocked cooling holes, sulfidation and damage caused by passage of foreign object metarials.

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		<u>No. 15 - HPT</u>	(1st an	d 2nd-Stage) Blade and Duct Segments, and (1s Vane Inspection	t-Stage)
				u must examine each blade, and rotate the hig ing hand or foot operated equipment.	h rotor
		(f)	Use th	ese limits when you examine the 2nd-stage HPT	blades:
			NOTE:	The first sign of corrosion on a blade is a stain or mark on the outer surface of the Bl green to white and blue color stain is a sig sulfidation corrosion.	.ade. A
			NOTE:	Blade erosion removes the surface layer which protection. This will quickly cause deterion the inner alloy.	
			NOTE:	A sign of airfoil growth is when the length is increased and the perimeter of the middle decreased.	
			NOTE:	The loss of the blade coating can possibly r	esult in
				decreased life of the base alloy. This cond well as hot corrosion that attach (sulfidati affect the blade reliability.	
			li	damage is worse than the decreased time insp mits, remove the engine from operation before cle.	
			th	these conditions will quickly occur, immedia e engine from operation: part failure, or ar terial will break off.	

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

	Table 605 (Figure 621)										
			2ND-STAGE HPT BL CONTINUE-IN-SERVICE								
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW							
Nicks and Dents	А	None	On each blade, one nick or dent that is not more than 0.025 inch (0.635 mm) in length or diameter.	For imminent material liberation, remove engine immediately.							
NOTE: No crack that is with a nick or dent is permitted,	В	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.250 inch (6.350 mm) in length or diameter.								
unless it is in the limits for Axial or Radial Cracks.	С	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.300 inch (7.620 mm) in length or diameter.								

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Table 605 (Figure 621)									
			2ND-STAGE HPT BL CONTINUE-IN-SERVICE						
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW					
Surface Layer Deterior— ation, Burned Areas Erosion	A, B	limits: 1) Surface layer the airfoil no inch (19.050 n 0.442 square mm) in area, o 2) Leading edge l more than 0.40 in diameter, o	 Surface layer deterioration on the airfoil no more than 0.750 inch (19.050 mm) in diameter, 0.442 square inch (285 square mm) in area, or Leading edge burned areas no more than 0.400 inch (10.160 mm) in diameter, 0.126 square inch (81 square mm) in area. 						

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AIRLINE CARD NO.

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MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

CONDITION FOUND AREA PERMITTED WITH REGULAR TIME INSPECTIONS ANONE. IMMEDIATELY REMOVE THE ENGINE. A None Internal Space", below. Material tears are tas are as cracks. CONDITION FOUND AREA PERMITTED WITH REGULAR TIME INSPECTIONS AREA None. IMMEDIATELY REMOVE THE ENGINE. A None All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks. C All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are permitted prowritted prowritted prowritted prowritted with open area to breakthrough limit is permitted. D AXIAL OR AREA A None. All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks. C All cracks are permitted. B All cracks on the leading edge or airfoil at tip are permitted. B Provimment material liberation, remove engine immediately.	Table 605 (Figure 621)									
CONDITION FOUND REGULAR TIME INSPECTIONS AXIAL OR RAGIAL Cracks NOTE: If there are holes, that are Burned through to the Internal Space", below. Material tears are the same as cracks. PERMITTED WITH REGULAR TIME INSPECTIONS ANONE. IMMEDIATELY REMOVE THE ENGINE. ALL cracks that are Burned through to the Internal Space", below. PERMITTED WITH DECREASED TIME INSPECTIONS ANONE ALL cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks. C ALL cracks are permitted provided that there are no open areas. No internal cavity with open area to breakthrough limit is										
Radial Cracks B None All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks. Internal Space", below. Material tears are the same as cracks. C All cracks are provided that the are no open areas. No intersecting cracks or immnent material liberation, remove engine immediately. All cracks are permitted liberation, remove engine immediately. All cracks on the leading edge or airfoil at tip are permitted. Break—through to internal cavity with open area to breakthrough liberation are limit is			REGULAR	DECREASED	EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR					
NOTE: If there are holes, see "Holes that are Burned through to the Internal Space", below. Material tears are the same as cracks. B None All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks. All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are All cracks on the leading edge or airfoil at tip are permitted. Break—through to internal cavity with open area to breakthrough limit is	Radial	А		THE ENGINE.						
Space", below. Material tears are the same as cracks. C All cracks are permitted leading edge or airfoil at tip are permitted. Break—through to intersecting cracks or immnent material liberation are limit is All cracks on the leading edge or airfoil at tip are permitted. Break—through to internal cavity with open area to breakthrough limit is	NOTE: If there are holes, see "Holes that are Burned through to the	В	None	are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other	material liberation, remove engine					
permitted.	to the Internal Space", below. Material tears are the same	al C al are me	permitted provided that there are no open areas. No intersecting cracks or immnent material	leading edge or airfoil at tip are permitted. Break—through to internal cavity with open area to breakthrough	material liberation, remove engine					

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AIRLINE CARD NO.

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MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

		Table 605	(Figure 621)		
		2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS			
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW	
Holes that Broken or Burned thr	А, В	None. IMMEDIATELY REMOV	THE ENGINE.		
to the Int Space	С	None	one On each blade, one piece that is gone from the lip or one hole that is less than O.125 square inch (81 square mm) in area. No more than five blades with these holes on each rotor.		
Bent Tip	C	Permitted if other conditions are not exceeded.		Remove Engine Immediately	
Trailing Edge Cooling Air Slots	А	A maximum of one cooling air slot lis permitted.		Remove engine immediately	
Blockage	В, С	A maximum of two non—adjacent trailing edge cooling air slots blocked per blade is permitted.		Remove engine immediately	
Tip Rub or Plasma Spray Loss	С	Any amount is according rubbed into the in		Remove engine immediately	
	 	 		• • • • • • • • • • • • • • • • • • • •	

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MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

		Table 605	(Figure 621)		
		2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS			
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOV ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW	
Liberated Blade Parent Material	A, B and C	None	None except as defined for "Material breakthrough into internal cavity" observed condition	Remove engine immediately	
Airfoil Growth (as evid— enced by: bent or displaced 2nd stage blade(s) relative to adjcent blades in rotor Abnormal/ excessive tip rub	A, B and C	None See Fig. 621A	None See Fig. 621A	Remove engine immediately	

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AIRLINE CARD NO.



MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)							
			2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS				
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW			
Wavy/ deformed trailing edge							
Necking or thinning of airfoil profile at midspan region							
Cracks in the midspan trailing edge cooling hole openings							

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- (g) Remove the PWA 86441 guide tube from the AP-8 ports.
- (h) Apply Silver Goop to the plug threads.
- (i) Install the plug with a new AP-8 gasket.
- (j) Tighten the AP-8 plugs.
- (k) Install lockwire on the AP-8 plug.
- (7) Install the access port plug AP-9 (Fig. 605A):
 - (a) Apply silver goop to the plug threads.
 - (b) Install the plugs with new AP-9 washers.
 - (c) Tighten the AP-9 plugs.
 - (d) Install lockwire on the AP-9 plug.
- Install the access port AP-10 (Fig. 605A):
 - If the access port AP-10 is disassembled, assemble it for the installation.

The plug assembly is not usually disassembled. NOTE: If you will examine the 3rd-Stage LPT vanes and blades , do not install the AP-10 access plug.

- 1) When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.
- From the washer side, put the plug in the assembled washer and cover.
- Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) With the split side to the inside, install the plug with a new AP-10 gasket.

NOTE: The plug will be in the case boss and the spring washer will push the plug to the inside.

- (c) Attach the plug stop cover to the plug (AP-10).
- (d) Fully clean the bolt threads and the plug threads with petroleum solvent.

NOTE: This removes unwanted carbon and all the used anti-seize paste (PO6-054).

- (e) Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.
- (f) With the bolts, attach the plug stop to the access port boss (Fig. 618).
- (g) Tighten the bolts (See Table 605A).
- (h) Install lockwire on the AP-10 plug.
- (9) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157);
 Install the AP-11 plug in the No. 3 TVBCA duct (Fig. 605A).
 - (a) Install the gasket in the borescope plug groove.
 - (b) Install the AP-11 plug at the aft elbow of the No. 3 TVBCA duct.
 - (c) Engage the AP-11 plug end in the inner hole of the HPT to seat it.
 - (d) Install the bolts, threads lubricated with engine oil.
 - (e) Tighten the bolts, in a sequence that is not circular (See Table 605A).
 - 1) Install lockwire on the plug.

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AIRLINE CARD NO.

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MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

AP-10 and AP-11 Borescope Plug Installation Data Table 605A								
AP Number And Location	Gasket Required	Bolt Locking Method	Bolt Replacement Lubricant	Bolt Torque Value lb-in (N.m)				
AP-10 HPT 2nd- Stage	Yes ST1146-08	Lockwire (MS9226-04)	PO6-023 Silver Goop	54.000 - 60.000 (6.101 - 6.779)				
AP-11 Lower TCA Tube	Yes PN ST1142-011 (Gasket)	Self-locking	P03-001 Engine Oil	75.000 - 85.000 (8.474 - 9.604)				

(10) Do this procedure: Put the Airplane Back to its Usual Condition.

<u>LPT Vanes (3rd-Stage)-Inspection</u>

A. General

- (1) This inspection is the visual check of the 3rd-stage vanes in the primary gaspath of the LPT.
- The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.

Equipment В.

- (1) AP-10 Gasket PWA ST1146-08
- (2) Puller PWA 86081 (For removal of the AP-10 Plug Assembly)
- (3) Wedge (Block Fan Blade) PWA 102757 (3 are required during windy conditions)
- (4) Packing Preform AS3209-121

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- (5) Crank Pad Cover Packing PWA AS3204-121
- C. Consumable Materials
 - (1) D50124 Anti-seize paste (P06-054)
 - (2) G00966 Kerosene VV-K-211
 - (3) B00776 Petroleum Solvent P-D-680, Type I
 - (4) D00244 Antiseize compound, high temperature -Silver Goop
- D. Do the LPT Vane Inspection.

CAUTION: WHEN YOU EXAMINE THE VANES, FIND THE CAUSE OF ALL OF THE FOD TO MAKE SURE THAT THE LPC IS SERVICEABLE. DAMAGE IN THIS AREA CAN BE AN INDICATION OF A MORE DANGEROUS PROBLEM. OTHER COMPONENTS CAN POSSIBLY BE DAMAGED.

USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION CAUTION: ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

- (1) Do this procedure: Prepare for the Borescope Inspection.
- DO NOT DO A BORESCOPE INSPECTION IF THE WIND IS MORE THAN 3 5 WARNING: MPH (4.8 - 8 KPH). DURING WINDY CONDITIONS, THE N1 ROTOR CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.
- INSTALL THE PWA 102757 WEDGES BETWEEN THE FAN BLADES WHEN THE WARNING: WIND IS LESS THAN 3 - 5 MPH (4.8 - 8 KPH). IF YOU DO NOT INSTALL THE WEDGES DURING MILD WIND CONDITIONS, THE N1 CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.
- (2) If the wind condition is less than 3 5 MPH (4.8 8 KPH), install the wedges as follows.

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			(a)	Do not install the wedge if the wind condition is more than 3 - 5 MPH (4.8 - 8 KPH).
			(b)	Install two or three wedges between the fan blades and the fan case at approximately the 6 o'clock position.
			(c)	Make sure the wedge is installed tight enough to prevent the fan blades from turning, but it must not raise the fan blades up.
			(d)	The red warning streamer must go towards the front of the engine inlet.
			(e)	If it is necessary to turn the N1 rotor to complete the borescope inspection, do the steps as follow.
				1) Remove the wedges.
				2) Turn the N1 rotor by hand and install the wedges again.
				Do this procedure again until the borescope inspection is complete.
		(3)		ve the plug from the LPT HPT access port AP-10; refer to 605 and 618 for the access port location and the borescope
			(a)	Remove the two bolts that attach the plug stop to the case (Fig. 618).
			(b)	Use a PWA 86081 Puller to remove, as an assembly, the plug, the plug stop, the spring washer, and the cotter pin; discard the gasket.
				NOTE: Do not remove the cotter pin.

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SAS BOEING 767 TASK CARD

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND
CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE
EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE
CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW
150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES
ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND
ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(4) Put the borescope through the access port to examine the 3rd-stage
LPT vanes for nicks, dents, cracks, and other FOD.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION
ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION

LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

CAUTION: IF YOU FIND DAMAGE THAT IS WORSE THAN THE CONTINUE-IN-SERVICE LIMITS, OR PIECES OF THE VANE WILL FALL OFF, REMOVE THE ENGINE IMMEDIATELY. THIS TYPE OF DAMAGE CAN CAUSE MORE DAMAGE TO THE ENGINE IF IT IS NOT REPAIRED.

- (5) Compare the damage you find with the continue-in-service limits shown in Fig. 622 (sheet 1).
 - (a) If there has been a sudden increase in EGT, check for a possible missing or liberated LPT 3rd-stage outer transition duct segment.
 - (b) No missing or liberated outer transition duct segments are permitted.
- (6) Install the access port AP-10 (Fig. 605A):

<u>NOTE</u>: If you will do an inspection of the LPT 3rd-stage blades, do not install the access port AP-10.

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		(a)	If the access port AP-10 is disassembled, assemble it for the installation.
			NOTE: The plug assembly is not usually disassembled.
			 When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.
			From the washer side, put the plug in the assembled washer and cover.
			3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.
		(b)	With the split side to the inside, install the plug with a new AP-10 gasket.
			NOTE: The plug will be in the case boss and the spring washer will push the plug to the inner side.
		(c)	Attach the plug stop cover to the plug (AP-10).
		(d)	Fully clean the bolt threads and the plug threads with petroleum solvent.
			NOTE: This removes unwanted carbon and all used anti-seize paste.
		(e)	Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.
		(f)	Attach the plug stop to the access port boss with the bolts (Fig. 618).
			1) Tighten the bolts.
		(g)	Install lockwire on the AP-10 plug.
		(7) Do t	his procedure: Put the Airplane Back to its Usual Condition.
		5. <u>LPT Blades (3</u>	rd-Stage) - Inspection

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- 6. Put The Airplane Back to its Usual Condition
 - A. References
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 78-31-00/201, Thrust Reverser System
 - B. Put the Airplane Back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Close the thrust reverser (AMM 78-31-00/201).
- (2) Close the core cowl panel (AMM 71-11-06/201).
- (3) Close the fan cowl panel (AMM 71-11-04/201).
- (4) For the left engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
 - (a) 11D19, ENGINE START CONT L
- (5) For the right engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
 - (a) 11D2O, ENGINE START CONT R
- (6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

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AIRLINE CARD NO.

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ACCESS PORT	ANGULAR POSITION CLOCKWISE FROM REAR	GASPATH LOCATION	PART(S) IN VIEW FOR INSPECTION	RECOMMENDED MAXIMUM PROBE DIAMETER IN/mm
THRU FAN	ALL	LPC COMPRESSOR INLET	1ST C-VANE 1ST C-BLADE	
AP-1	245°	4TH-STAGE COMPRESSOR VANE	REAR OF 4TH C-BLADE FRONT OF 4TH C-VANE	
AP-2	233°	5TH-STAGE COMPRESSOR VANE	REAR OF 5TH C-BLADE FRONT OF 6TH C-BLADE	0.270/6.8
AP-3	231°	6TH-STAGE COMPRESSOR VANE	REAR OF 6TH C-BLADE FRONT OF 7TH C-BLADE	0.270/6.8
AP-4	127°	8TH-STAGE COMPRESSOR VANE	REAR OF 8TH C-BLADE FRONT OF 9TH C-BLADE	0.270/6.8
AP-5	214°	10TH-STAGE COMPRESSOR VANE	REAR OF 10TH C-BLADE FRONT OF 11TH C-BLADE	0.270/6.8
AP-6	98°	12TH-STAGE COMPRESSOR VANE	REAR OF 12TH C-BLADE FRONT OF 13TH C-BLADE	0.270/6.8
AP-7	80°	14TH-STAGE COMPRESSOR VANE	REAR OF 14TH C-BLADE FRONT OF 15TH C-BLADE	0.270/6.8
AP-8	45°, 128°, 172°, 225°, 277°, 338°	COMBUSTION CHAMBER	FUEL NOZZLE COMBUSTION CHAMBER 1ST TURBINE VANE	0.444/11.3
AP-9	93°	COMBUSTION CHAMBER	FRONT OF 1ST T-VANE FRONT OF 1ST T-BLADE	0.270/6.8
AP-10	139°	TRANSITION DUCT	REAR OF 2ND T-BLADE FRONT OF 3RD T-VANE	0.270/6.8
AP-11	215°	STAGE 2 TURBINE BLADE	REAR OF 1ST T-BLADE FRONT OF 2ND T-BLADE	0.444/11.3
THRU EXHAUST CASE STRUTS	ALL		6TH T-BLADE 6TH T-VANE	

Borescope Access Port Data Figure 605 (Sheet 1)

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ACCESS PORT	NOTES
THRU FAN AP-1 AP-2 AP-3	
AP-4 AP-5 AP-6	[2] [3]
AP-7 AP-8, 45° AP-8, 128°	[5]> [5]>
AP-8, 172° AP-8, 225° AP-8, 277°	[5) [9) [5) [4)
AP-8, 338° AP-9 AP-10	5>6>
AP-11	8>

- ACCESS IS THROUGH FOURTEEN 2.5 BLEED VALVE OPENINGS IN THE INNER LINING OF THE FAN EXIT CASE.
 A FLEXIBLE PROBE IS NECESSARY AT THIS ACCESS PORT.
- BORESCOPE MUST BE ANGLED 5° AFT OF THE PLANE THAT IS AT 90° TO THE ENGINE CENTERLINE TO INSERT PROBE.
- BORESCOPE MUST BE ANGLED 15° AFT OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
- BORESCOPE MUST BE ANGLED 21° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
- BORESCOPE MUST BE ANGLED 7.5° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
- 6 RIGHT ANGLE EYEPIECE RECOMMENDED.
- 7 ALLOW 3-4 INCHES (76-102 mm) FOR THE EYEPIECE LENGTH.
- 8 OPTIONAL BORESCOPE PORT LOCATION
- 9> RIGHT ANGLE EYEPIECE IS NECESSARY.

Borescope Access Port Data Figure 605 (Sheet 2)

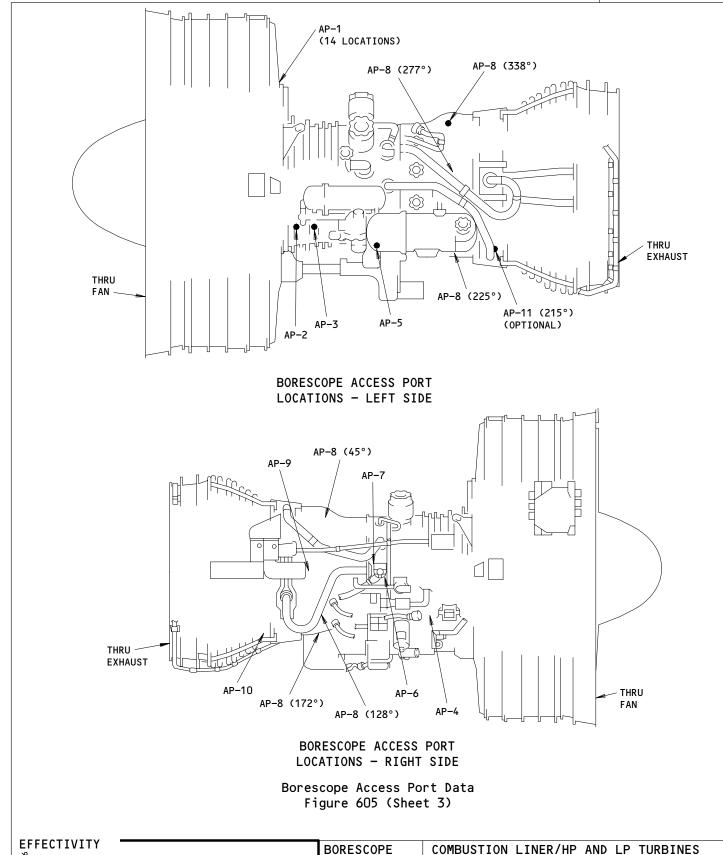
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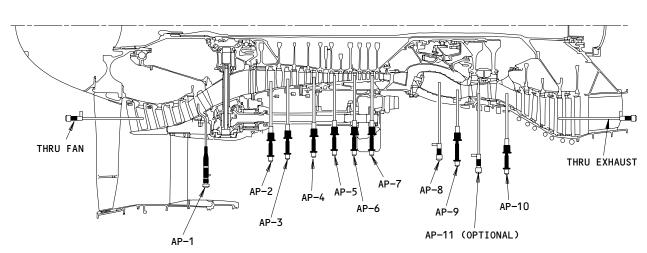
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ACCESS PORT GASPATH LOCATION

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Borescope Access Port Data Figure 605 (Sheet 4)

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ACCESS PORT	ENGINE LOCATION	PACKING/ GASKET	LOCKING METHOD	PLUG LUBRICANT	TORQUE VALUE INCH-POUNDS (NEWTON-METERS)
AP-2	HPC 5TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
			KEY WASHER (PN 53H027) FOR LATER PLUG		
AP-3	HPC 6TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
			KEY WASHER (PN 53H028) FOR LATER PLUG		
AP-4	HPC 8TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	2>4>6>	175-190 (19.8-21.5)
AP-6	HPC 12TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	2>4>6>	175-190 (19.8-21.5
AP-8 (45)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (128)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (172)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (225)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (277)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (338)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-9	REAR OF DIFFUSER CASE	WASHER	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-10	2ND-STAGE HPT BLADE	GASKET	LOCKWIRE	SILVER GOOP	54-60 (6.1-6.8)
AP-11 5	1ST-STAGE HPT BLADE	GASKET	LOCKWIRE	ENGINE OIL ON BOLT THREADS	75-85 (8.5-9.6)

1 ENGINES PRE-PW-SB 72-675

ENGINES POST-PW-SB 72-708

ENGINES POST-PW-SB 72-675

> ENGINES PRE-PW-SB 72-708

5 ENGINES POST-PW-SB 72-157

6 ENGINES POST-PW-SB 72-755

Borescope Access Port Installation Data Figure 605A

EFFECTIVITY	BORESCOPE	COMBUSTION LI	NER/HP AND LP TURBINES
W13232	N72-00-00-6A	72-410-c1-1	PAGE 65 OF 87 AUG 22/08

72-410-C1-1

AIRLINE CARD NO.

SAS

767 TASK CARD

AP-8 (338°)

SEE F

AP-8 (277°)

SEE D

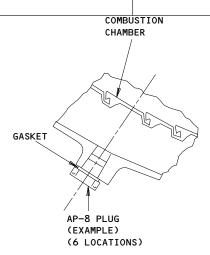
AP-8 (128°)

SEE B

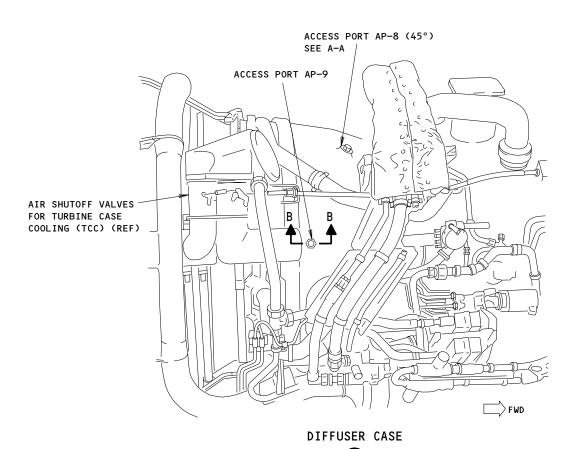
AP-8 (172°)

SEE C

AP-8 PORT LOCATIONS (VIEW IN THE FORWARD DIRECTION)



A-A



Combustion Chamber Access Ports Figure 611 (Sheet 1)

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A

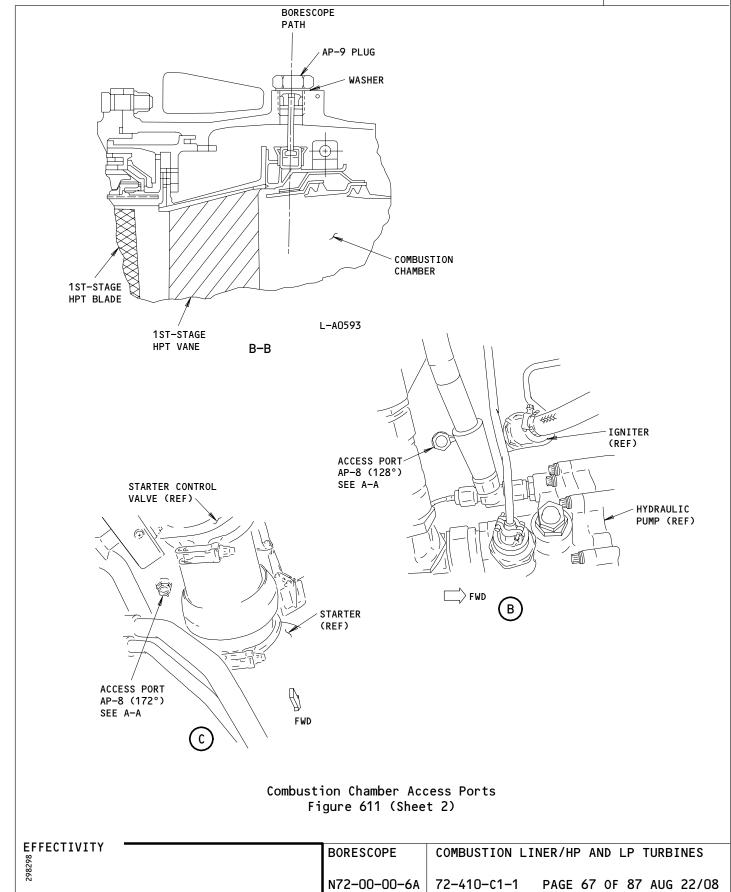
72-410-C1-1 PAGE 66 OF 87 AUG 22/08

FOEING 767 TASK CARD

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72-410-C1-1

AIRLINE CARD NO.



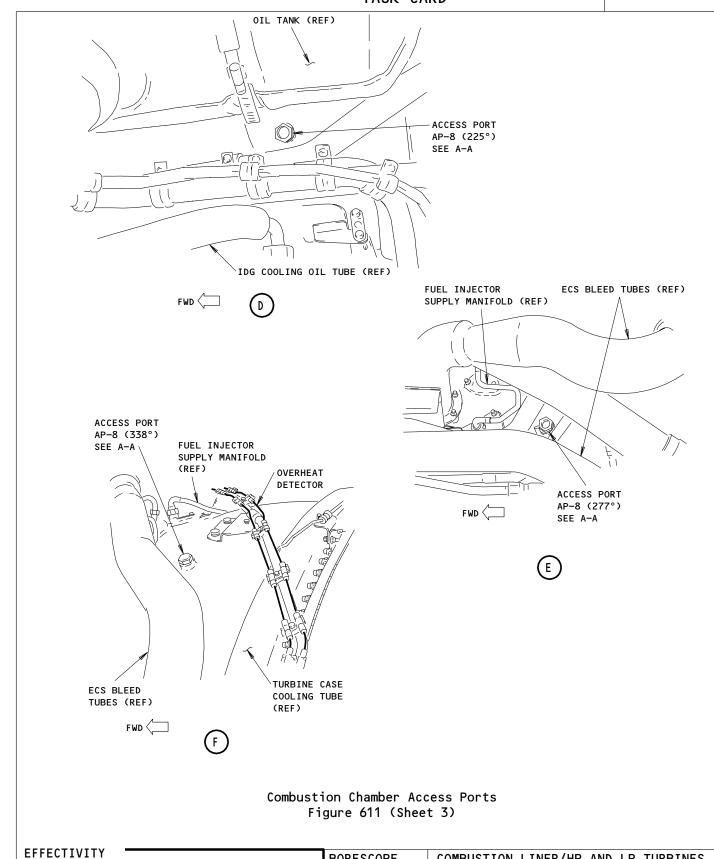
767

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BOEING TASK CARD

72-410-c1-1

AIRLINE CARD NO.



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N72-00-00-6A

COMBUSTION LINER/HP AND LP TURBINES

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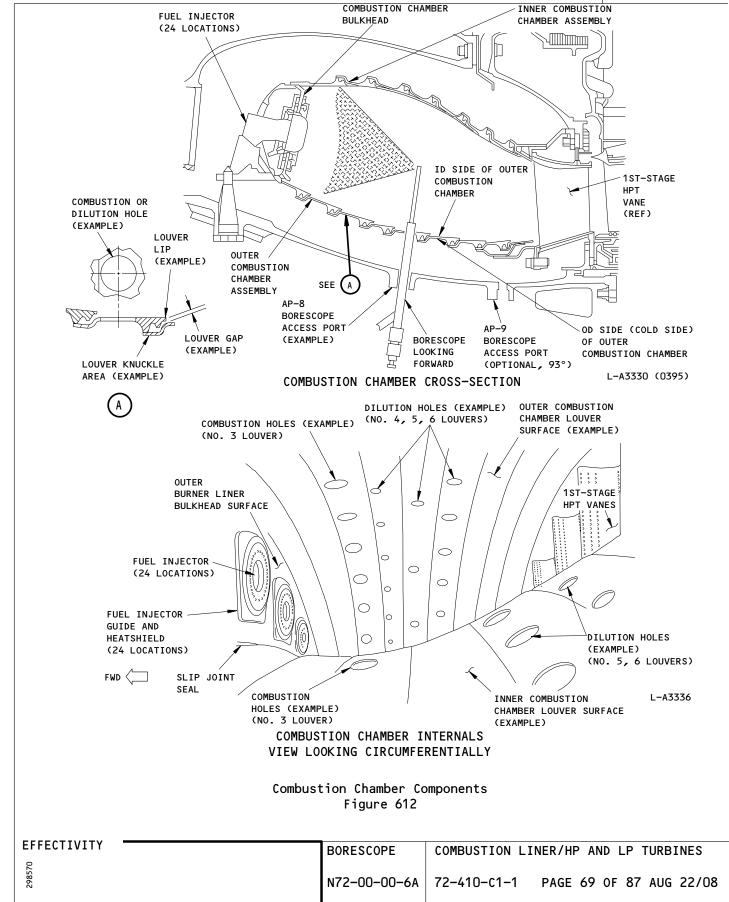
72-410-C1-1

AIRLINE CARD NO.

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TASK CARD

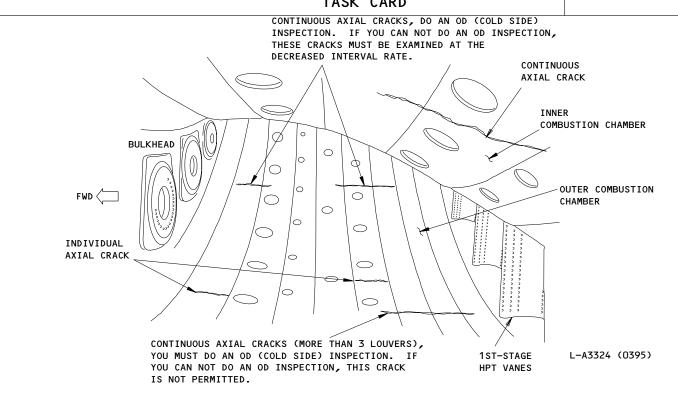
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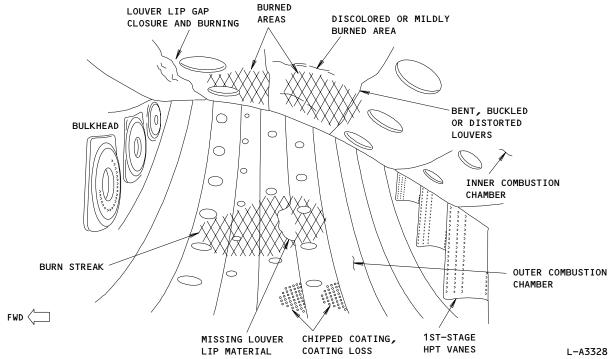


SAS

BOEING 767 TASK CARD

AIRLINE CARD NO.





VIEW IN THE CIRCUMFERENTIAL DIRECTION

Inner and Outer Combustion Chamber Distress Figure 613 (Sheet 1)

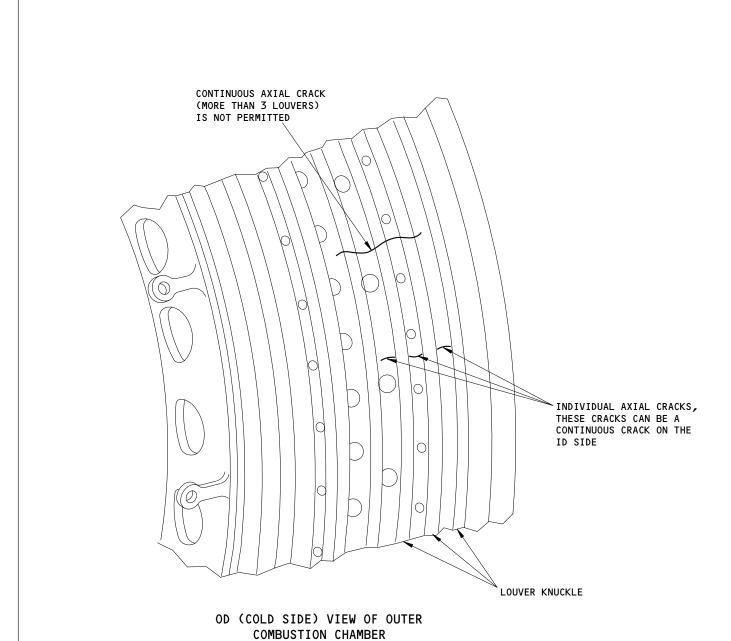
EFFECTIVITY E	BORESCOPE	COMBUSTION LIN	NER/HP AND LP TURBINES
118	N72-00-00-6A	72-410-c1-1	PAGE 70 OF 87 AUG 22/08

AIRLINE CARD NO.

72-410-C1-1

SAS

BOEING 767 TASK CARD



L-B0742 (0000) PW V

Inner and Outer Combustion Chamber Distress Figure 613 (Sheet 2)

EFFECTIVITY	BORESCOPE	COMBUSTION LI	NER/HP AND LP TURBINES
7 0	N72-00-00-6A	72-410-c1-1	PAGE 71 OF 87 AUG 22/08

72-410-C1-1

AIRLINE CARD NO.

SAS

767 TASK CARD

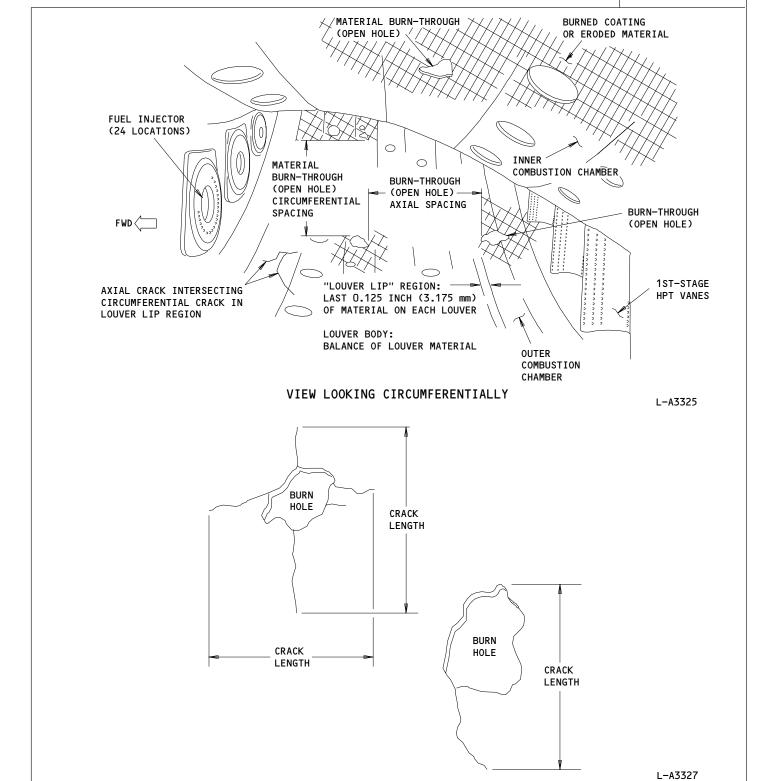


Figure 613 (Sheet 3)

EFFECTIVITY

BORESCOPE N72-00-00-6A

Inner and Outer Combustion Chamber Distress

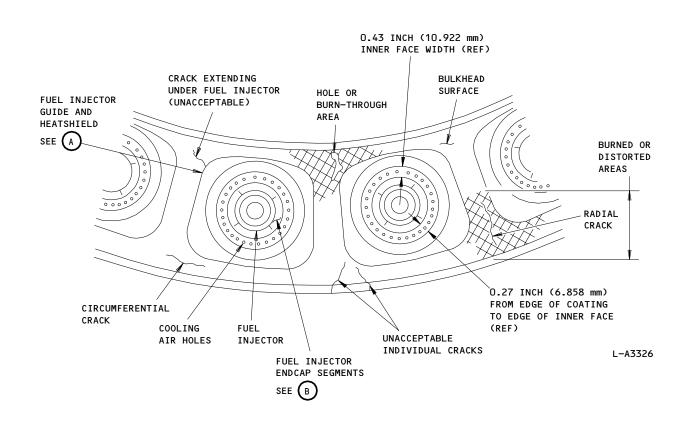
COMBUSTION LINER/HP AND LP TURBINES

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AIRLINE CARD NO.

72-410-C1-1

SAS



Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress Figure 614 (Sheet 1)

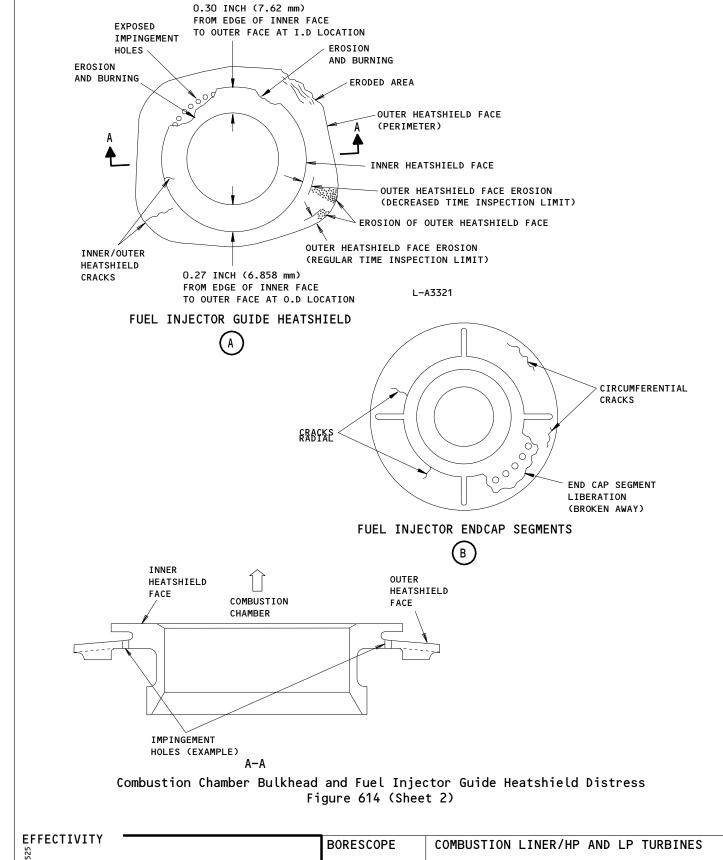
COMBUSTION CHAMBER BULKHEAD

EELECTIVITY	BORESCOPE	COMBUSTION	LINER/HP	AND I	_P TURE	BINES
	N72-00-00-6A	72-410-c1-1	PAGE	73 OF	87 AUG	22/08

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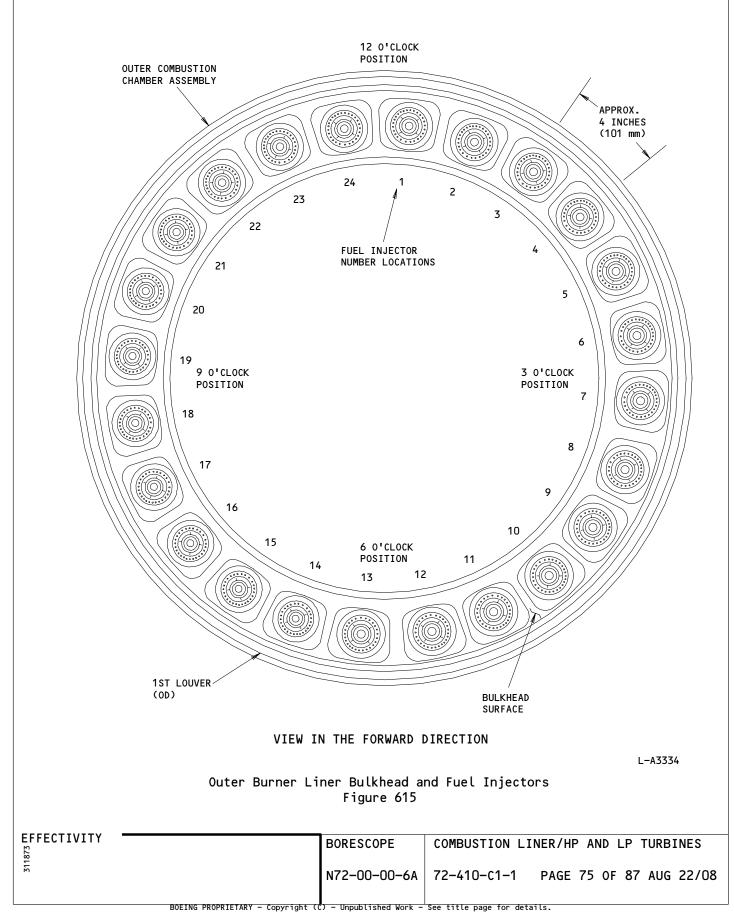
PAGE 74 OF 87 AUG 22/08

AIRLINE CARD NO.

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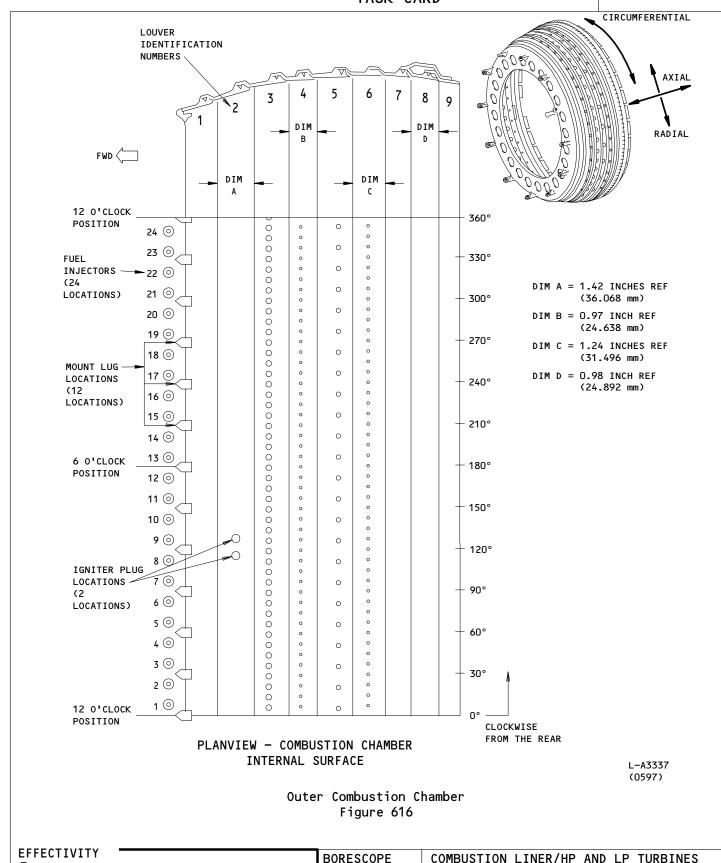




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COMBUSTION LINER/HP AND LP TURBINES

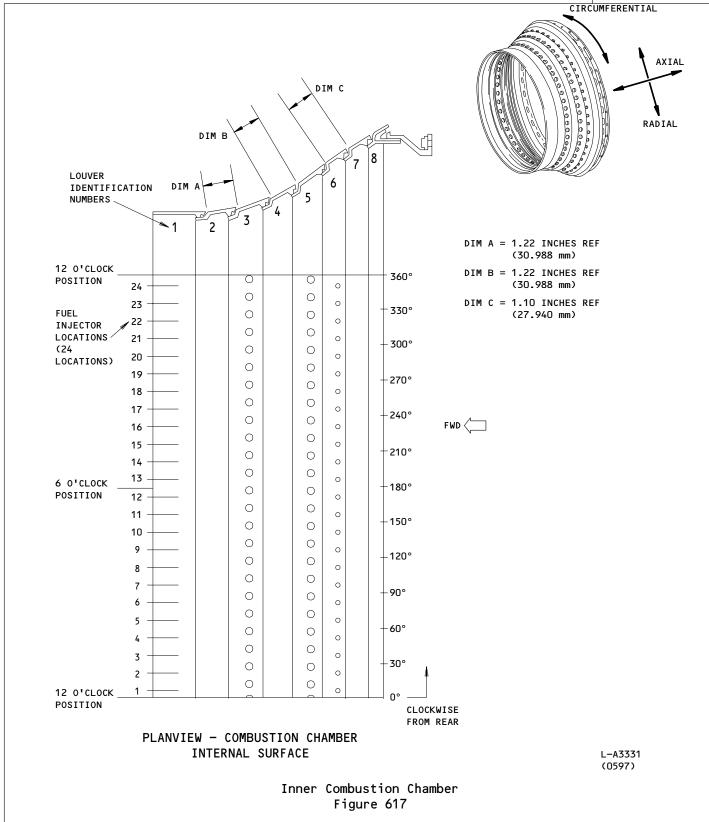
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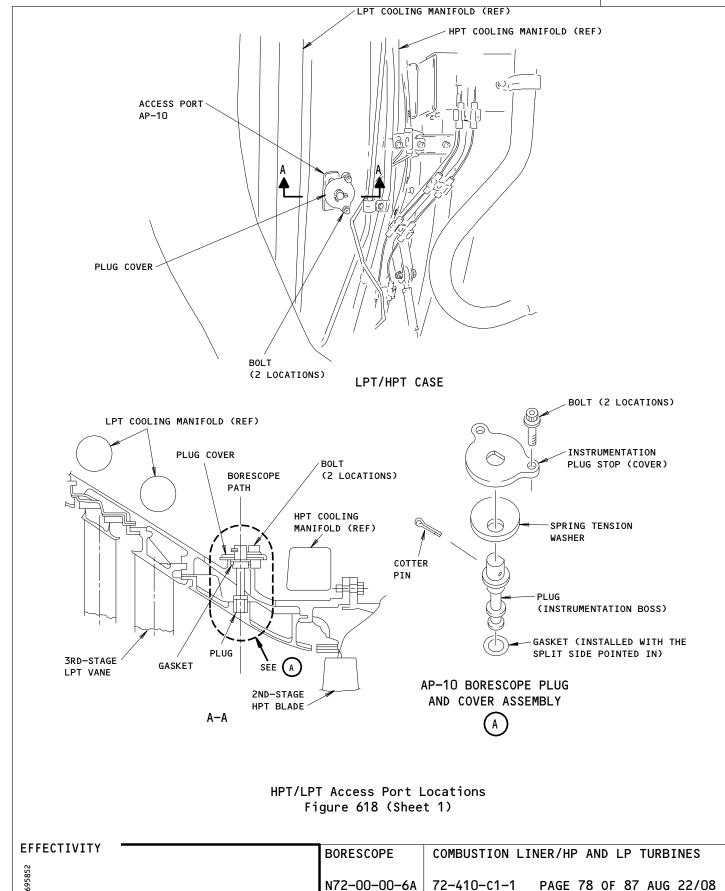
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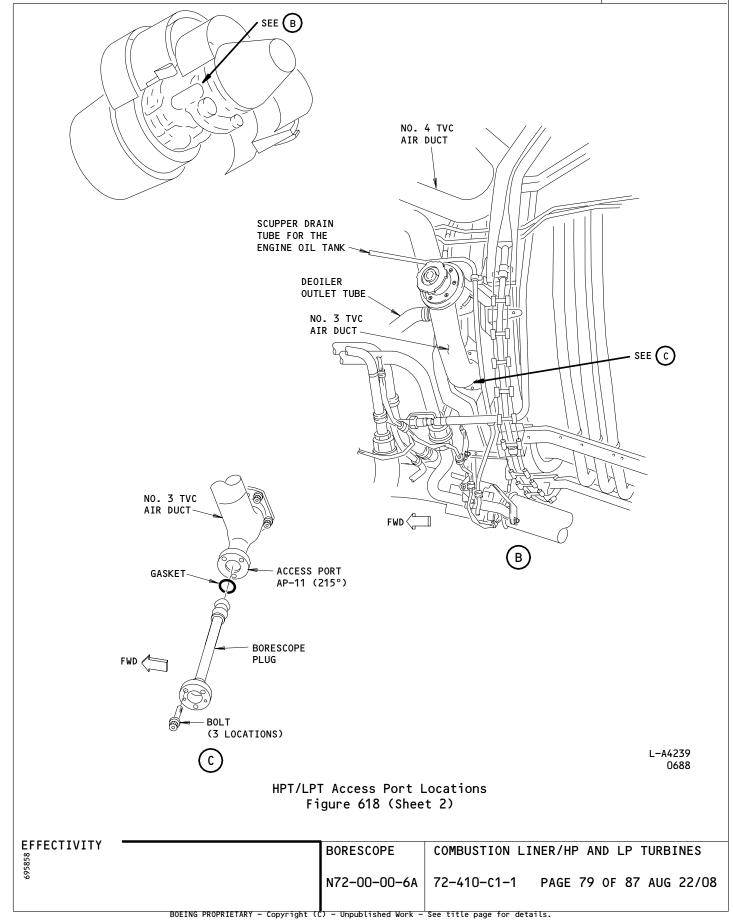


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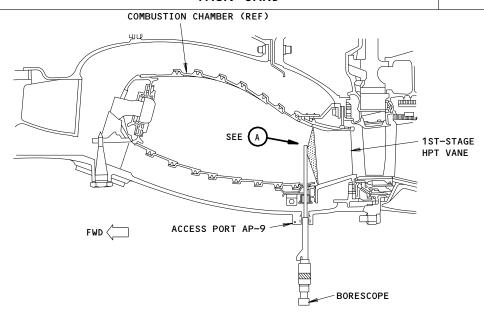


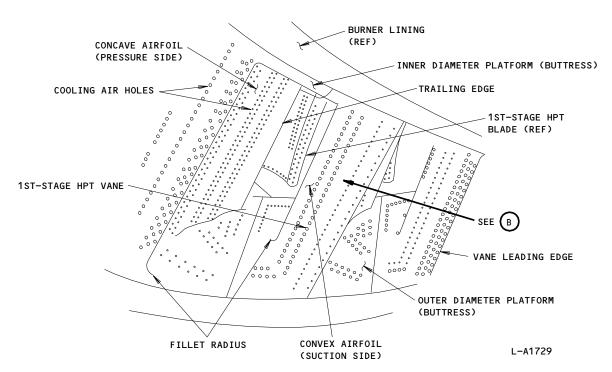
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AIRLINE CARD NO.

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VIEW OF 1ST-STAGE HPT VANES THROUGH BORESCOPE

 \bigcirc

L-A1729 (0192)

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 1)

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A 72-410-C1-1 PAGE 80 OF 87 AUG 22/08

AIRLINE CARD NO.

SAS

BOEING 767

TASK CARD INNER DIAMETER LEADING EDGE **PLATFORM** BURN THROUGH SEE (c) -0.75X 1.575 INCHES (40 mm) OUTER DIAMETER CONCAVE SIDE TRAILING PLATFORM EDGE BURN THROUGH (MAXIMUM ALLOWABLE) REGULAR TIME INSPECTION (CONCAVE AIRFOIL SURFACE) L-D3525 (0907) B) LEADING EDGE BURN THROUGH 1.575 INCHES (40 mm) CONCAVE SIDE TRAILING EDGE BURN THROUGH (MAXIMUM ALLOWABLE) 300 CYCLE DECREASED TIME INSPECTION (CONCAVE AIRFOIL SURFACE) L-D3526 (0907)

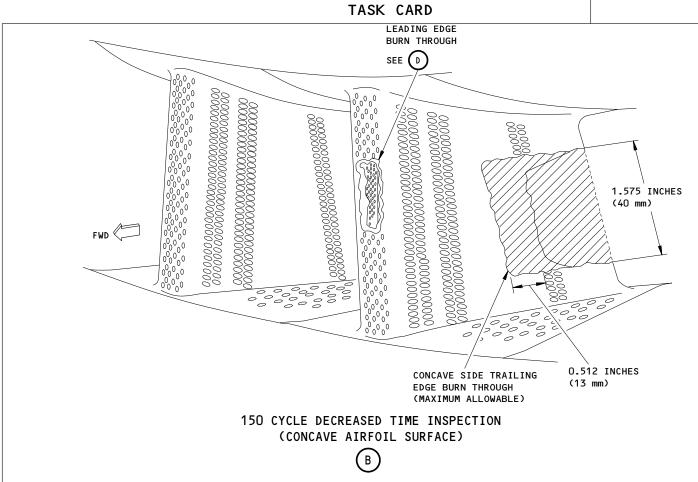
1st-Stage HPT Vane Continue-In-Service Limits Figure 619 (Sheet 2)

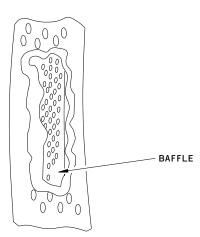
EFFECTIVITY COMBUSTION LINER/HP AND LP TURBINES BORESCOPE N72-00-00-6A 72-410-c1-1 PAGE 81 OF 87 AUG 22/08

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BOEING 767 TASK CARD





LEADING EDGE BURN THROUGH



L-D3527 (0907) PWV

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 3)

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

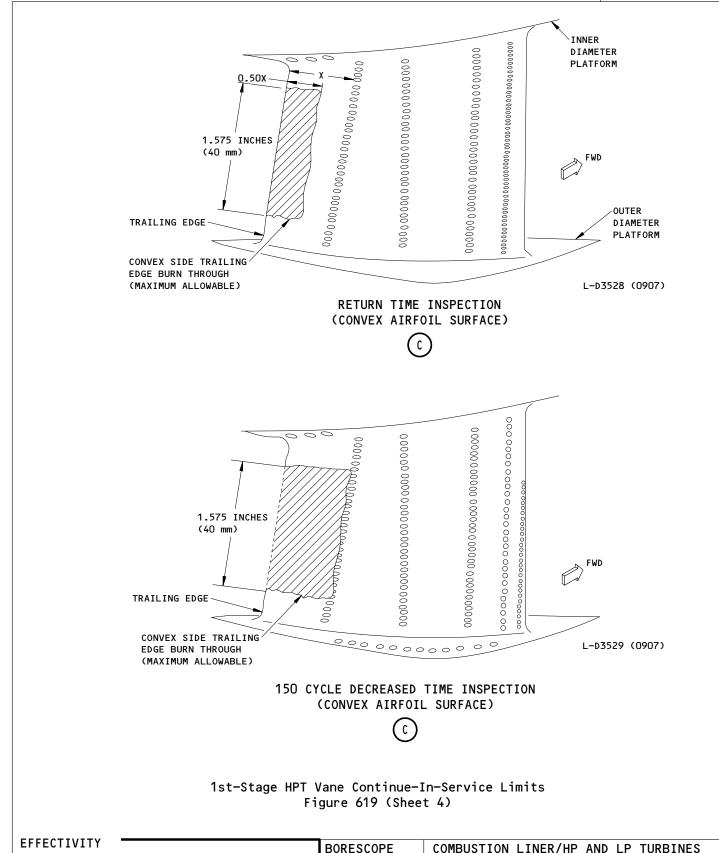
N72-00-00-6A 72-410-C1-1 PAGE 82 OF 87 AUG 22/08

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AIRLINE CARD NO.

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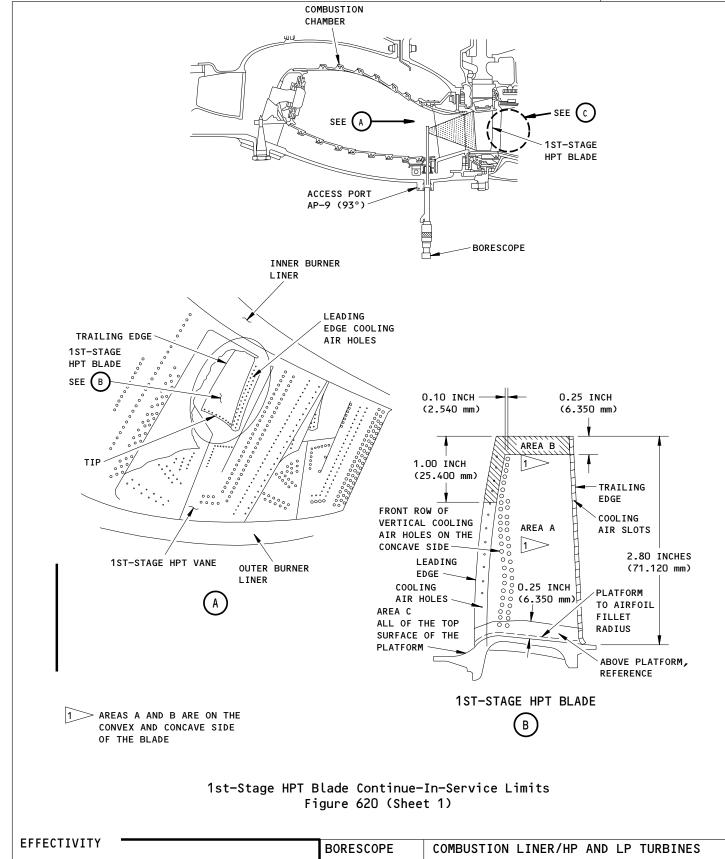
72-410-C1-1

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72-410-c1-1

COMBUSTION LINER/HP AND LP TURBINES

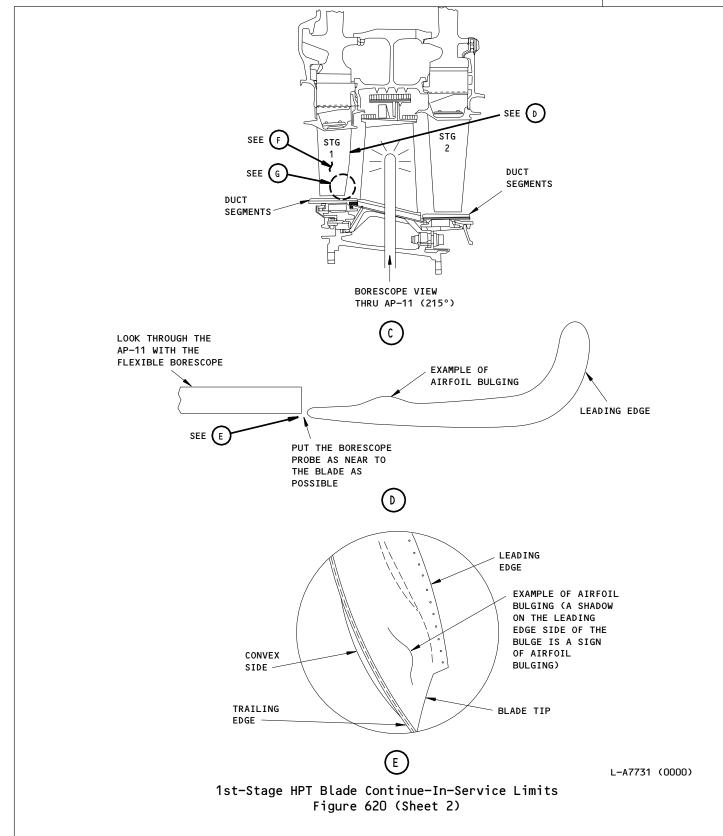
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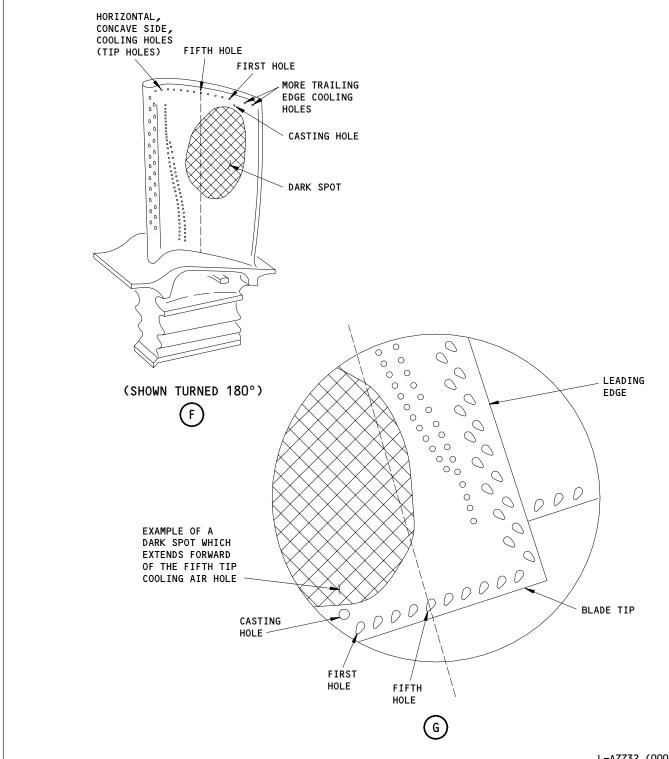
EFFECTIVITY

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AIRLINE CARD NO.

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BOEING 767 TASK CARD



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1st-Stage HPT Blade Continue-In-Service Limits figure 620 (Sheet 3)

EFFECTIVITY COMBUSTION LINER/HP AND LP TURBINES **BORESCOPE** N72-00-00-6A 72-410-c1-1 PAGE 86 OF 87 AUG 22/08

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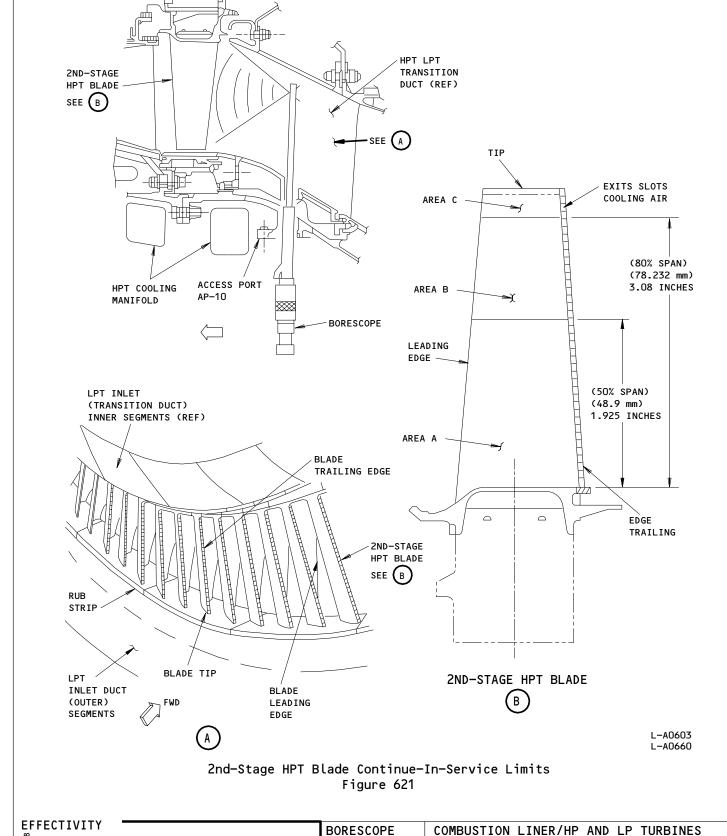
BOEING 767

TASK CARD

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AIRLINE CARD NO.



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STATION	
TAIL NO.	
DATE	\neg



BOEING CARD NO. 72-410-C1-2

AIRLINE CARD NO.

TASK CARD

MPD

WORK AREA RELATED TASK INTERVAL SKILL PHASE REVISION REV 006 00250 CYC AUG 22/09 ENGIN | ENGINE 2 10101 STRUCTURAL ILLUSTRATION REFERENCE

APPLICABILITY
AIRPLANE ENGINE **BORESCOPE** COMBUSTION LINER/HP AND LP TURBINES ALL 4000

ACCESS PANELS ZONES

421 427AL 428AR

MPD ITEM NUMBER MECH INSP

BORESCOPE CHECK THE ENGINE 2 INNER AND OUTER COMBUSTION CHAMBER ASSEMBLIES AND FIRST STAGE TURBINE NOZZLE GUIDE VANES (CLUSTERS).

72-00-00-6A N72-00-00-6A N72-00-00-6B

N72-00-00-6C

BORESCOPE CHECK THE ENGINE 2 STAGE 1 AND STAGE 2 HIGH PRESSURE TURBINE BLADES.

72-00-00-6B

BORESCOPE CHECK THE ENGINE 2 STAGE 3 LOW PRESSURE TURBINE NOZZLE GUIDE VANES.

72-00-00-6C

THE FIELD OF VIEW PROVIDED BY INSPECTION PORT NOTE: AP10 DOES NOT ALLOW A FULL VIEW OF ALL THIRD STAGE NOZZLE GUIDE VANES. HOWEVER, THOSE VANES WHICH CAN BE VIEWED ARE SUFFICIENT TO EVALUATE THE CONDITION OF THE THIRD STAGE NOZZLE GUIDE VANES.

ENGINE GASPATH - INSPECTION/CHECK

Prepare for the Borescope Inspection

Α. General

- This procedure gives the equipment and steps that are necessary to prepare for the borescope inspections.
- Refer to Fig. 605A for installation data on each borescope access (2) port.

Equipment B.

Borescope Inspection Equipment - Specification CTE 6181, Support Equipment Engineering, Pratt & Whitney Commercial Products Division, 400 Main Street, East Hartford, CT 06108, USA MS 11803

EFFECTIVITY BORESCOPE COMBUSTION LINER/HP AND LP TURBINES N72-00-00-6A 72-410-c1-2 PAGE 1 OF 87 APR 22/03

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767
TASK CARD

MECH INSP

NOTE: Specification CTE 6181 gives the equipment and related hardware, such as power source, light cables, adapter, that is required during borescope inspections. This specification sets the quality and functional standards for this equipment. This borescope equipment is recommended:

- (a) Low magnification rigid borescope. AP2-7, 9 (optional for THRU FAN) (0.270 inch/6.8 mm barrel dia max)
- (b) High magnification rigid borescope. AP8, 11 (0.444 inch/11.3 mm barrel dia max)
- (2) Optional borescope equipment and sizes that make the operation of the borescope better and easier are also shown in CTE 6181. This equipment includes clamps that hold the borescope in position and optical video equipment. This video equipment helps you see and make a videotape record of the borescope procedure for a second, more full, examination.
 - (a) Borescope equipment is available with rigid or flexible probes that have different operation lengths and fields of vision. You can use closed circuit television with some borescopes.

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A

72-410-C1-2 PAGE 2 OF 87 DEC 22/01

AIRLINE CARD NO.

 (b) The equipment that follows is from Olympus Corp., IFD 4 Nevada Drive, Lake Success, NY 11042, and agrees with specification CTE 7181. You can get equivalent equipment from American Cystoscope Makers Inc., Industrial Division, 300 Stillwater Ave., Stamford, CT 06902, or Richard Wolf Medical Instruments Corp., 7046 Lydon Ave., Rosemont, IL 60018. 1) Rigid Borescope - Olympus Model C080-048-090-50, 8 mm diameter, 48 cm operation length, lateral view, 	
Corp., IFD 4 Nevada Drive, Lake Success, NY 11042, and agrees with specification CTE 7181. You can get equivalent equipment from American Cystoscope Makers Inc., Industrial Division, 300 Stillwater Ave., Stamford, CT 06902, or Richard Wolf Medical Instruments Corp., 7046 Lydon Ave., Rosemont, IL 60018. 1) Rigid Borescope - Olympus Model C080-048-090-50, 8 mm diameter, 48 cm operation length, lateral view,	
CO80-048-090-50, 8 mm diameter, 48 cm operation length, lateral view,	
50-degree field of view	
2) Rigid Borescope - Olympus Model C100-037-090-50, 10 mm diameter, 37 cm operation length, lateral view, 50-degree field of view	
3) Eyepiece, right angle adapter – Olympus Model KMR-90/4	
4) Flexible Borescope - Olympus Model IF8D3-15, 8 mm diameter, 125 cm operation length, direct view, 40-degree field of view	
5) Distal right angle adapter - Olympus Model IF8D3-A4OS, 40-degree field of view	
6) Light Source - Olympus Model ILK-4, 150 Watt Halogen	
7) Light Cable - Olympus Model 2950B High Intensity Light Cable, 6 mm diameter, 72 inch length	
8) Flexible Borescope - Olympus Model PF27-7, 6.8 mm (0.27 inch) diameter, 130 cm operation length, direct view, 70-degree field of view, Articulating Tip	
	50-degree field of view 3) Eyepiece, right angle adapter - Olympus Model KMR-90/4 4) Flexible Borescope - Olympus Model IF8D3-15, 8 mm diameter, 125 cm operation length, direct view, 40-degree field of view 5) Distal right angle adapter - Olympus Model IF8D3-A4OS, 40-degree field of view 6) Light Source - Olympus Model ILK-4, 150 Watt Halogen 7) Light Cable - Olympus Model 2950B High Intensity Light Cable, 6 mm diameter, 72 inch length 8) Flexible Borescope - Olympus Model PF27-7, 6.8 mm (0.27 inch) diameter, 130 cm operation length, direct view, 70-degree field of view, Articulating

EFFECTIVITY

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

- 9) Flexible Borescope Olympus Model IF6D3-20, 6 mm diameter, 180 cm operation length, direct view, 65-degree field of view, Articulating Tip
- (c) This television system is available from Westinghouse Electronic Tube Division, P.O. Box 284, Elmira, New York 14902
 - Mobile Video Inspection Equipment Model No. M616W, closed circuit television camera system.

NOTE: This video inspection equipment is used with Richard Wolf Corp. Borescope Models FIB 750, and FIB 760.

- C. Reference
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 78-31-00/201, Thrust Reverser System
- D. Access
 - (1) Location Zones

411 No. 1 Power Plant 421 No. 2 Power Plant

- E. Prepare for the Borescope Inspection.
 - (1) Get the applicable borescope equipment.
 - (2) For the left engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a D0-N0T-CLOSE tag:
 - (a) 11D19, ENGINE START CONT L
 - (3) For the right engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a D0-NOT-CLOSE tag:

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A

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AIRLINE CARD NO.

SAS BOEING 767 TASK CARD

MECH INSP

- (a) 11D2O, ENGINE START CONT R
- (4) Open the fan cowl panel (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (5) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).
- (6) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(7) Open the thrust reverser (AMM 78-31-00/201).

Combustion Chamber Inspection

- A. General
 - (1) This inspection is the visual check of the Combustion Chamber: the inner and outer combustion chamber assemblies, the bulkhead, and the heatshield of the fuel injector guide.
 - (2) The limits given in this section will help you know if the engine can continue to operate or if you must remove and repair it.
- B. Equipment
 - (1) AP-8 Gasket PWA 673049 (6 are necessary)
- C. Consumable Materials
 - (1) D00137 Engine Oil PWA 521B
 - (2) D00244 Antiseize compound, high temperature Silver Goop
- D. Do the Combustion Chamber Inspection

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A 72-410-C1-2 PAGE 5 OF 87 AUG 22/09

72-410-C1-2

AIRLINE CARD NO.



MECH INSP

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE—IN—SERVICE LIMITS.

- (1) Do this procedure: Prepare for the Borescope Inspection.
- (2) Remove the plugs from the AP-8 access ports of the combustion chamber; refer to Fig. 605 and 611 for access port locations and borescope data.

NOTE: Six AP-8 plugs are on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from top center of engine when you look forward.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(3) Put the borescope through each access port to examine the condition of the combustion chamber.

<u>NOTE</u>: The borescope goes into the combustion chamber through the dilution air holes.

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A

72-410-C1-2 PAGE 6 OF 87 AUG 22/09

AIRLINE CARD NO.

SAS FOR TASK CARD

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(4) Compare the damage as identified in Figs. 612, 613, and 614 with the continue-in-service limits shown in Table 602A and Table 602B.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:

- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done

more frequently.

- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.
- (a) These conditions of damage occur in the inner and outer combustion chamber assembly:
 - The conditions that follow are examples of burned or released material:
 - a) Discolored or distorted areas on the louver
 - b) Areas where louver lip material is gone because of too much heat.
 - An axial series of damaged louvers, in which each louver has burned or released material, is an example of a burned stripe.
 - A hole is because of too much heat and goes fully through the combustion chamber wall; holes frequently occur in burned stripes.

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(b) Refer to Figs. 615, 616, and 617 to help you keep a record of the damage in the combustion chamber assembly.

NOTE: You can write on copies of these figures to keep a record of the damage.

(c) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

	Table 602A				
	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS				
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION			
Open Holes that are Burned Through	Four open holes in each assembly.	Six open holes in each assembly.			
	The maximum diameter of each hole is 0.500 inch (12.700 mm) 0.19 square inch (123 square mm). There must be at least 6 inches (152.400 mm) of material				
	without damage, between each ho	ole. 			
Burned Marks, Distortion, Louver Lip Material that is gone, or Burned Stripes	All quantities of burned marks, distortion, or louver lip material that is gone Damage that is on no more than three adjacent louvers. This is the indication of the start of a burned stripe.	Axial burned stripes that are on more than three adjacent louvers. Refer to the applicable condition found in this table for limits for opened hole size, crack length, and the connection of cracks.			
Burned Areas, Areas where Material is Gone, or a Deterioration of the Surface Layer. All quantities. All quantities. NOTE: If you find much damage or many areas where the material is gone, examine the turbine airfoils for damage. This is most important for the last louver					

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			Table 602A	
			INNER AND OUTER COMBUSTION CHAP	MBER ASSSEMBLY (Except Bulkhead) ERVICE LIMITS
		CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Nicks in the Surface Layer, Thermal Barrier Ceramic Layer that is Gone.	All quantities. NOTE: When the surface layer Combustion Chamber dete	I is gone, the rate of the rioration will increase.
		Louver Gap Decrease and and Burned Marks	All quantities. NOTE: Too much of a Gap decreation	ase will increase the rate of n in the Combustion Chamber.
		Bends, Buckles, or Distortion on the Louvers	All quantities.	

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MECH INSP Table 602A INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS PERMITTED WITH REGULAR PERMITTED WITH DECREASED CONDITION **FOUND** TIME INSPECTION TIME INSPECTION NOTE: For axial cracks that enter a combustor, dilution, or ignition hole, the diameter of the manufactured hole does not need to be added to determine the crack length until the crack is seen exiting from the opposite side of the hole. **Axial Cracks** All cracks that are not more Maximum of 2 cracks every 6.0 than 0.75 inch (19.050 mm) in inch (152.040 mm) of louver that are confined to length. Cracks that go commaterial. Cracks must be one louver pletely across the No.9 louver separated circumferentially of the Outer Burner Lining, by 0.75 inch (19.05 mm). if there is not less than 2.5 inches (63.5 mm) circumferen-Maximum of 3 cracks every 6.0 inches (152.40 mm) of tially between each one. louver material. Cracks must Cracks can completely traverse be separated one louver, but must be circumferentially by 1.5 separated circumferentially inches (38.10 mm). by 6.0 inches (152.40 mm) minimum.

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			Table 602A					
			•	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS				
		CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
			NOTE: If these limits are exceeded, contact Pratt & Whitney for recommendation.					
			Cracks can completely traverse on Outer Burner Lining No. 9 (rear most) louver, but must be separated circumferentially by 2.5 inches (63.5 mm) minimum. On the Outer Burner Lining (rear most), the minimum separation of cracks must be 2.5 inches (63.5 mm).					
			NOTE: An individual crack is a crack only to one louver.					

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		Table 602A				
	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except					
	CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION			
	Continuous Axial Cracks that go completely	Axial cracks which go completely through more than one louver must be inspected with the decreased time inspection.	Axial cracks which go comp- pletely through more than three adjacent louvers are no permitted.			
	through one or more louvers	If you can do an inspection of the outside diameter (OD) (cold side) of the louver, and the cracks do not go through the edge which overlaps the adjacent louver, the limits for axial cracks that are confined to one louver are applicable. If you cannot do an inspection of the OD (cold side) of the louver, the limits for continuous axial cracks that go through one or more louvers are applicable.				
		cracks do not go through cracks are classified as the individual axial cra	inspection shows that the the the louver knuckle area, the sindividual axial cracks. Use ack limits. Without the outer tion, the cracks must be cracks.			
		and/or louver wall deformate than 0.060 inch (1.524 mm). Limits apply for two louver 2. Three louver crack, if the match is more than 0.060 incoracks must be apart circums (508.0 mm) minimum. 3. Four louver crack, if the match three adjacent louvers mm) wide but less than 0.150	asured crack width on each of than 0.060 inch (1.524 mm) wide ion or surface mismatch is more Individual crack separation cracks. Measured crack width on each of is more than 0.060 inch (1.524 deformation, or surface misch (1.524 mm). Three louver ferentially by 20.0 inches Measured crack width on each of is more than 0.060 inch (1.524 mm), and/or louve is match is more than 0.060 inch (1.524 mm), and/or louve is match is more than 0.060 inch (1.50 inch (3.810 mm). Engine			

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			Table 602A			
			INNER AND OUTER COMBUSTION CHAR	MBER ASSSEMBLY (Except Bulkhead) ERVICE LIMITS		
		CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION		
				greater than 0.150 inch (3.810 l deformation or surface mis-		
			inspection is not eas is used to find if a cracked by looking th	ection only if the cold side y to access. This inspection knuckle between two louvers is rough a borescope at the inner the burner rather than the face.		
			cked surfaces in the inspected for crack w less than 0.060 inch fied as individual crack width more	ace inspection method, all cracontinuous axial crack must be idth. If all louver cracks are (1.524 mm), it must be classiacks. If one after the other than 0.060 inch (1.524 mm), ed as a three louver crack.		
			if they do not go thrown An outer (cold side) check, if the cracks area. If the outer (the cracks do not go	as an individual axial cracks, ough the louver knuckle area. inspection is an optional to go through the louver knuckle cold side) inspection shows that through the louver knuckle area, lassified as individual axial		
			burn, twist and fall aw louver. This can cause continue to burn onto t	s longer, the louver metal can ay from the surface of the axial cracks on one louver to he adjacent louvers, but they een. That is why it is best to spection, if you can.		

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MECH INSP Table 602A INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS PERMITTED WITH REGULAR PERMITTED WITH DECREASED CONDITION **FOUND** TIME INSPECTION TIME INSPECTION Circumferen-Only ones in the lip area are permitted. The maximum length tial Cracks for the lip cracks is 2.0 inches (50.800 mm). Connection of The only ones permitted are in the lip area. Axial and Circumferen-Louver lip material that is gone because of the connection of tial Cracks axial and cicumferential cracks is permitted. The maximum length of circumferential crack in lip area is 2 inches (50.8 mm). Connection of Refer to the limits for Burn-Through (Open Holes) and Axial Axial Cracks Cracks. Include width of burn hole as part of overall crack and Burned length. Holes Table 602B COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS CONDITION PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** TIME INSPECTION TIME INSPECTION

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	Table 602B					
CONDITION FOUND		COMBUSTION CHAMBER AS FUEL INJECTOR GUI CONTINUE-IN-SE	IDE HEATSHEILD			
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION			
	Cracks in the Heatshield Face	All quantities of cracks that a (6.350 mm) in length are permit				
		Cracks that go through other cr	racks are not permitted.			
		No more than two cracks that are longer than 0.25 inch (6.350 mm) are permitted.	No more than four cracks that are longer that 0.25 inch (6.350 mm) are permitted.			
		Two cracks on each face are permitted to go across each face, but must be apart by at least 45°.	Four cracks on each face are permitted to go across each face, but must be apart by at least 30°.			
	Erosion of the Inner Heatshield Face (Material that is Gone)	All quantities of erosion of the Inner Heatshield Face are permitted. But, the imping- ment holes must not be open to view from the rear.	All quantities of erosion of the Inner Heatshield Face are permitted. But, no more than four impingment holes on each Heatshield are permitted to be open to view from the rear			
	Erosion of the Outer Heat— shield Face (Material that is Gone)	Outer Heatshield Face Erosion must not extend more than 0.200 inch (5.080 mm) from the perimeter of the Outer Heatshield Face.	Erosion which extends from the perimeter of the Outer Heat-shield Face must be more than 0.025 inch (0.635 mm) away from the Inner Heatshield Face			
Burned Marks and Distortion in the Heat- shield Face		Heatshield burned marks and dis Heatshield face erosion and cra damage that results to the Bulk the given limits.	acks are in the limits. The			
	Heatshield Surface Layer that is Gone	tshield All quantities. face Layer				

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MECH INSP Table 602B COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS CONDITION PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** TIME INSPECTION TIME INSPECTION Fuel Injector All quantities of Cracks or endcap segments that are gone are permitted. If pieces of the endcap segments are not there, Endcap examine the 1st- and 2nd-stage HPT blades for FOD. Segments Radial Cracks All quantities are permitted. See Figure 614. in the Fuel Injector End Cap/Tip Heatshield Circumferen-All quantities are permitted. See Figure 614. tial Cracks along the OD of the Fuel Injector End Cap/Tip Heatshield All quantities are permitted. See Figure 614. End Cap Material Liberation NOTE: Liberation is segments broken away. of the Fuel Injector End Cap/Tip Heatshield Burned Marks, None are permitted. Erosion, Distortion, IMMEDIATELY REMOVE THE ENGINE or Holes in the Bulkhead

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	Table 602B			
COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS				
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION		
Radial or Circumferen- tial Bulkhead Cracks	Individual radial or circumfe- rential cracks that are less than 0.50 inch (12.7 mm) in length are permitted.	All quantities that are less than 0.50 inch (12.700 mm) in length are permitted. Cracks must be separated circumferentially by 6.00 inches (152.40 mm) of sound material.		

- (5) Install the access port plugs AP-8 (Fig. 605A):
 - (a) Apply some Silver Goop to the plug threads.
 - (b) Install the plugs with new AP-8 Gaskets.
 - Tighten the AP-8 plugs to 40-50 pound-inches (4.519-5.649 (c) newton-meter).
 - Install lockwire on the AP-8 plug.
- (6) Do this procedure: Put the Airplane Back to its Usual Condition.
- 3. HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane **Inspection**
 - Equipment
 - (1) AP-8 Gasket PWA 673049 (6 are necessary)
 - (2) AP-9 Washer PWA 584977
 - (3) AP-10 Gasket PWA ST1146-08
 - (4) AP-11 Gasket PWA ST1142-012
 - (5) Puller PWA 86081 (For removal of the AP-10 Plug Assembly)

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- (6) Packing Preform AS3209-121
- (7) Guide Tube PWA 86411, AP-8 Port (for the flexible borescope)
- B. Consumable Materials
 - (1) D50124 Anti-seize paste (P06-054)
 - (2) B00299 Petroleum Solvent P-D-680, Type I
 - (3) D00244 Antiseize compound, high temperature Silver Goop
- C. Do the HPT Blade and Vane Inspection.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

- (1) Do this procedure: Prepare for the Borescope Inspection.
- (2) Remove the plugs from the access ports AP-8 and AP-9 of the combustion chamber; refer to Fig. 605 and 611 for the access port locations and borescope data.

NOTE: The six AP-8 plugs are found on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from the top center of the engine from the rear view.

- (a) Measure the shaft diameter of the AP-9 borescope plug.
- (b) If the minimum dimension of the shaft diameter is less than 0.100 inch (2.54 mm), you must replace the AP-9 borescope plug.
- (3) Do the steps that follow to install the PWA Guide Tube:
 - (a) Put the PWA 86411 Guide Tube through the diffuser case access port at the AP-8 location with the tip pointed forward (in the direction of the front of the engine).

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- (b) Turn and adjust the tube until the flexible borescope, when it is installed, will point in the direction of the 1st-stage NGV (nozzle guide vanes).
- (c) Lock the Guide Tube in the correct position with the compression nut.
- (4) Remove the plugs from the access ports AP-10 of the HPT LPT transition duct, and the optional AP-11 for the HPT; refer to Fig. 605 and Fig. 618 for the access port locations and borescope data.
 - (a) Remove the two bolts which attach the AP-10 plug assembly to the case (Fig. 618).
 - (b) Use a PWA 86081 Puller to remove, as an assembly, the AP-10 plug, the plug stop, the spring washer, and the cotter pin.

NOTE: Do not remove the cotter pin.

- (c) Discard the gasket.
- (d) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157); remove the borescope plug and gasket from the No. 3 TVBCA (turbine vane cooling air) duct AP-11 as follows:
 - 1) Remove the bolts that attach the borescope plug to the aft elbow of the No. 3 TVBCA duct.
 - 2) Remove the plug with two jackscrews, if it is necessary.
 - 3) Discard the packing.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

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(5) Put the borescope through each access port to examine the condition of the HPT blades and vanes.

NOTE: It is possible that you will find local cracks and spalling on the HPT duct segments during the borescope inspection.

These local cracks and spalling are permitted, if the engine is within EGT limits.

(6) Compare the damage as identified in Figs. 619, 620, and 621 with the continue-in-service limits shown in Tables 603, 604 and 605.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:

- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done

more frequently.

- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.
- (a) Use these limits when you examine the 1st-stage HPT vanes:
 - If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.
 - 2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

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1:	ST-STAGE HPT N	/ANES CONTINUE-IN-SERVICE LI Table 603	[MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS
Nicks and Dents	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	Nicks and rounded bottom dents that are not more than 0.125 inch (3.175 mm) in length or diameter.	
			is such that depth can be dimum nick and round bott 12 inch (0.792 mm).
	Trailing Edge	No more than two nicks or dents that are apart by at least 0.750 inch (19.050 mm). Five Vanes Maximum on each engine.	
		If more than the above interval inspection limits.	Remove engine in 5 cyc or less.

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1:	ST-STAGE HPT V	/ANES CONTINUE-IN-SERVICE L1 Table 603	(MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREA
Damaged or Missing Thermal Barrier Coating	Leading Edge, Con- cave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of chipped coating, coating loss, checking, crazed or cracked thermal barrier coating.	
		coating is missing, operated for a long the vane cannot be	of thermal barrier (gone), and the vane time, it is possible repaired at overhaul. become burned and ero
Burned Areas, Erosion	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of burning and erosion as long as it is not burned completely through the wall.	
Material Break- through or Burn- through	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	One material breakthrough or burnthrough with an open area (material that is not there) up to but not more than 0.157 inch (3.988 mm) diameter or 0.019 sq-in. (12.258 sq-mm).	

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157	-STAGE HPT	VANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASE TIME INSPECTION
		One material breakthrough or burnthrough and with an open area (material that is not there) more than 0.157 inch (3.988 mm) but less than 0.300 inch (7.620 mm) diameter or up to 0.070 sq-in. (45.161 sq-mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		A maximum of five vanes for each engine with one material breakthrough or burnthrough, and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or 0.196 sq-inch (126.451 mm) into the internal cavity.	Permitted for 300 cycle reduced inspection interval.
		More than 5 vanes with one material breakthrough or burnthrough and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or up to 0.196 sq-inch (126.451 sq-mm) maximum.	Permitted for 150 cycle reduced inspection interval.

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1:	ST-STAGE HPT	VANES CONTINUE-IN-SERVICE LI Table 603	IMITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREAS TIME INSPECTION
		For leading edge burn- through more than 0.500 inch (12.700 mm) diameter: No limit on the number of vanes with leading edge burnthrough up to 1.614 inch (40.996 mm) maximum radial length that does not go axially more than the first row of concave side cooling holes and does not go axially more than the second row of convex side cooling holes is permitted if there is no burning on the internal baffle.	Permitted for 50 cycle reduced inspection interval.
		Vane baffle burned through.	Not permitted. Remove and Replace.
		More than the above internal inspection limits.	Remove engine in 5 cyc maximum or less.
Material Break- through or Burn- through	Concave Side Trailing Edge	Burnthrough less than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.	

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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION Burnthrough more than Permitted for 300 cycle 75 percent span of axial reduced inspection length from the trailing interval. edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width. Burnthrough up to 0.512 Permitted for 150 cycle inch (13.005 mm) forward reduced inspection of the rear two rows of interval. cooling holes and up to 1.575 inches (40.005 mm) maximum width. Burnthrough more than Remove engine in 5 cycles 0.511 inch (12.979 mm) maximum or less. forward of the rear two rows of cooling holes, or is more than 1.575 inches (40.005 mm) in width, or if the internal baffle is burned through. Convex Side Burnthrough less than Trailing 50 percent span from the Edge trailing edge to the rear cooling holes. Permitted for 150 cycle Burnthrough more than 50 percent span from the reduced inspection trailing edge to the rear interval. cooling holes. Burnthrough is forward Remove engine in 5 cycles of the rear cooling or less. holes.

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15	ST-STAGE HPT \	VANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASE TIME INSPECTION
Cracks, (Axial and Radial)	Leading Edge Surface	No limit on the quantity of tight cracks. Closed loop cracks are not permitted.	
		One crack in each vane starting at the ID or OD platform, to a maximum height of 0.500 inch (12.700 mm).	
		A maximum of 3 cracks in each vane which go to a concave or convex airfoil cooling hole. Closed loop cracks are not permitted.	
		Two cracks in each vane starting at the ID or OD platforms, to a maximum height of 0.750 inch (19.050 mm).	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycl maximum or less.

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1:	ST-STAGE HPT	VANES CONTINUE-IN-SERVICE LI Table 603	IMITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASE TIME INSPECTION
	Concave Airfoil Surface	burned or eroded to inch (1.270 mm) mus	ngth of a crack that has o a width more than 0.050 st be identified as a hol o burnthrough limits appl
		A maximum of three axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group are permitted.	
		One of the above three axial cracks can go forward or rearward to the next cooling hole group or from the trailing edge through the rear cooling hole group to the next cooling hole group.	

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157	-STAGE HPT	VANES CONTINUE-IN-SERVICE LI Table 603	MITS (Figure 619)
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		No limit on the quantity of axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group if the cracks do not form a closed loop.	Permitted for 300 cycle reduced inspection interval.
		Radial cracks that go from the ID or OD plat-form to the concave airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	
	CONDITION	CONDITION VANE	CONDITION FOUND AREA TIME INSPECTION No limit on the quantity of axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group if the cracks do not form a closed loop. Radial cracks that go from the ID or OD platform to the concave airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on

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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION Radial cracks that go Permitted for 300 cycle from the ID or OD platreduced inspection form to the concave airinterval. foil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface. Three radial cracks maximum to 0.500 inch (12.700 mm) maximum length are permitted. No limit on the quantity Permitted for 300 of radial cracks to cycle reduced 0.800 inch (20.320 mm) inspection interval. length.

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		1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603							
		CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
				A crack can intersect with another crack except for cracks that start at the ID or OD platform. The maximum length for either crack leg is 0.400 inch (10.160 mm). The intersection of platform cracks with airfoil cracks is not permitted.					
				An intersecting crack with a leg more than 0.400 inch (10.160 mm) and less than 0.800 inch (20.320 mm) except for cracks that start at the the ID or OD platform. The intersection of platform cracks with airfoil cracks is not permitted. length.	Permitted for 300 cycle reduced inspection interval.				
				More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.				

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	1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603							
	CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
		Convex Airfoil Surface	No limit on the quantity of axial or radial cracks less than 0.157 inch (3.988 mm) are permitted. Closed loop cracks are not permitted.					
			burned or eroded to inch (1.270 mm) mus	ngth of a crack that has a width more than 0.050 at be identified as a hole. burnthrough limits apply.				
			Three axial cracks maximum to 0.500 inch (12.700 mm) maximum length except as follows: One of the three axial cracks can traverse from the trailing edge for a maximum distance of 0.750 inch (19.050).					
			Six axial cracks maximum to 0.800 inch (20.320 mm) maximum length except as follows: One of the six axial cracks can traverse from the trailing edge for a maximum distance of 1.300 inches (33.020 mm), or to the last row of cooling holes.	Permitted for 300 cycle reduced inspection interval.				
			One axial crack from the trailing edge to a maxi-mum of 1.181 inches (29.997 mm).					

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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION One axial crack from the Permitted for 300 trailing edge more than cycle reduced inspection 1.181 inches (29.997 mm) interval. to 2.362 inches (59.995 mm) maximum is permitted. Three radial cracks to 0.500 inch (12.700 mm) length. No limit on the quantity Permitted for 300 of radial cracks to 0.800 cycle reduced inspection inch (20.320 mm) maximum. interval. A crack can intersect with another crack except for cracks that start at the ID or OD platforms. The maximum length for either crack leg is 0.500 inch (12.700 mm). Intersection of platform cracks with airfoil cracks is not permitted. An intersecting crack Permitted for 300 with a leg more than cycle reduced inspection 0.500 inch (12.700 mm) interval. and less than 0.800 inch (20.320 mm) except for cracks that start at the

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ID or OD platform.

Intersection of platform cracks is not permitted.

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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION Radial cracks that go from the ID or OD platforms to the convex airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm).Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface. Radial cracks that go Permitted for 300 cycle reduced inspection from the ID or OD platform to the convex airinterval. foil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm) are permitted. Cracks from a platform that go to the airairfoil surface cannot intersect other cracks on the airfoil surface. More than the above Remove engine in 5 interval inspection cycles maximum or less. limits.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603								
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
	ID and OD Platform Surfaces (Buttresses)	No limit on the quantity of cracks less than 0.250 inch (6.350 mm) in length on the platform surfaces are permitted. Intersecting cracks are permitted if no closed loop is formed. Closed loop cracks are not permitted.						
		burned or eroded to inch (1.270 mm) mus	ngth of a crack that has o a width of more than 0.050 st be identified as a hole. burnthrough limits apply.					
		Four cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Three of the cracks can be up to 0.700 inch (17.780 mm) long, and one crack can be of any length. These cracks can go to the airfoil concave surface to a height of 0.500 inch (12.70 mm).						
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MECH INSP 1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603 CONDITION VANE PERMITTED WITH REGULAR PERMITTED WITH DECREASED **FOUND** AREA TIME INSPECTION TIME INSPECTION Six cracks maximum more Permitted for 300 cycle than 0.250 inch (6.350 reduced interval. mm) long are permitted on the OD platform concave airfoil side. Four of the cracks can be up to 0.700 inch (17.780 mm) long, and two of the cracks can be of any length. These cracks can go to the airfoil concave surface to a height of 0.800 inch (20.320 mm). Two cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge. Four cracks more than Permitted for 300 cycle 0.250 inch (6.350 mm) reduced inspection interval. long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.

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Table 603						
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION			
		Two cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.				
		Four cracks more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.	Permitted for 300 cycle reduced inspection interval.			
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 0.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.0 inch (25.400 mm). No circumferential cracks in the leading edge fillet.				

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603								
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION					
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 1.000 inch (25.400 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.750 inches (44.450 mm).	Permitted for 300 cycle reduced inspection interval.					
		One crack maximum in the ID or OD leading edge fillet radius surface that goes circumferentially around the leading edge to a length of 0.400 inch)10.160 mm) maximum.	Permitted for 300 cycle reduced inspection interval.					
		More than the above in- terval inspection limits.	Remove engine in 5 cycles maximum or less.					

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) Use these limits when you examine the 1st-stage HPT blades:

The first sign of corrosion on a blade is a circular NOTE: stain or mark on the outer surface of the blade. A green to white and blue color stain is a sign of sulfidation corrosion.

NOTE: Blade erosion removes the surface layer which is for protection. This will quickly cause deterioration of the inner alloy.

NOTE: A sign of airfoil growth is when the length of the blade is increased and the perimeter of the middle is decreased.

- 1) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.
- 2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604							
			HPT BLADE SERVICE LIMITS				
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604						
		1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS				
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION			
Nicks and Dents NOTE: No crack	A	None	On each blade, one nick or dent that is no more than 0.08 inch (2.032 mm) in length or diameter.			
that is with a nick or dent is permitted, unless it is, in the limits for Axial or Radial Cracks.	В	All Nicks or dents that are not more than 0.08 inch (2.032 mm) in length or diameter.	All nicks or dent that are not more than 0.125 inch (3.175 mm) in length or diameter.			
Burned Areas NOTE: Burned areas that cause a decrease in the flow of cooling air is not permitted.	A, B, and C	Burned areas are not permitted.	Burned areas to a maximum of 0.750 inch (19.050 mm) in diameter or 0.422 square inch (285.0 square mm) in area. Leading edge burned areas to a maximum of 0.40 inch (10.160 mm) in diameter Or 0.126 square inch (81.0 square mm) in area.			
Erosion damage on the surface layer.	A, B, and C	All amounts are Permitted.	All amounts are permitted.			

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604							
		1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS					
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
Axial or Radial Cracks NOTE: See the subsequent limits for open cracks. Material tears are the same as cracks.	A	None	One hole to hole crack of the leading edge only. No airfoil cracks. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.				
	В	All axial or radial cracks or hole to hole cracks at the tip or leading edge are permitted. No breakthrough or open areas. No intersecting cracks or imminent material liberation.	Axial or radial cracks on the leading edge, airfoil or tip area are permitted. Breakthrough to internal cavity with open area to breakthrough limit is permitted.				
		NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION.	NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OF IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5				
			CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.				

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604							
		1ST-STAGE CONTINUE-IN-S	HPT BLADE SERVICE LIMITS				
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION				
Axial or Radial Cracks NOTE: See the subsequent cracks. Material tears are the same as cracks.	С	All quantities of platform edge cracks that do not go into the platform to airfoil fillet radius and do not have signs of platform curling.	All quantities of platform edge cracks that go into the platform to airfoil fillet radius UP TO 0.250 INCH (6.350 mm) RADIALLY PAST THE RADIUS INTO THE AIRFOIL. NOTE: REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED. PLATFORM CURL (BEND) IS NOT PERMITTED.				

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

		Table 604	
			HPT BLADE SERVICE LIMITS
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Holes that are Broken or	А	None is permitted. IMM	THE ENGINE THE ENGINE
Burned through to the Internal Cavity	В	None	On each blade, one piece that is gone from the tror one hole that is less than 0.125 square inch (81.0 square mm) in area No more than five blades with these holes on each rotor. NOTE: If the hole is more than the decreased time limits, but fully in area B, remove the engine within 50 cycles. If the hole goes outside of area B, remove the engine within 5 cycles or immediately.
Bent Tip	В	A bent tip is permitted than other damage limit	if the damage is not wors
Leading Edge Holes and Blocked Cooling Air Exit Slots in the Trailing Edge	A and B	Two leading edge holes (not adjacent) and two blocked trailing edge exit slots on each blade	
Blocked Cooling Air Exit Holes in the Tip	В	Two blocked holes on each blade.	All blocked holes if the damage is not worse that other damage limits.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604						
		1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS				
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION			
Tip Rub or Plasma Spray Deterioration	В	All quantities, if it is not worn through to the internal cavity.				
Areas where the Blade Parent Material is Gone	A and B	None None, but that whi in the limits for or Burned Hole.				
Airfoil Growth	A and B	None IMMEDIATELY REMOVE THE ENGINE.				

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(c) PW4056 ENGINES PRE-PW-SB 72-466; Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

- 1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:
 - a) Examine the blades for bulges after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".
 - b) If you find a bulge, remove the engine within 25 cycles.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

2) If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

- a) Examine the blades for dark spots after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".
- b) If you find a bulge or a white spot in a dark spot, remove the engine within 25 cycles.

<u>NOTE</u>: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

- c) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, examine the engine each 20 cycles and remove the engine within 100 cycles.
- (d) PW4060 ENGINES PRE-PW-SB 72-466; Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

- 1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:
 - a) Examine the blades for bulges after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.
 - b) After the 1,900th cycle, examine the blades for bulges each 125 cycles.

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	No. 15 - HP	T (1st		age) Blade and ne Inspection	Duct Segments, and (1	<u>st-Stage)</u>
				_	before the 1,500th cyc damage each 50 cycles	=
				find a bulge within 25 cyc	after the 1,500th cycl les.	e, remove the
		2)	AP-8, exam		rescope with a guide t e side of the 1st-stag s:	_
			usu bul tip	ally have a la ge. A dark sp	blades with airfoil bright of shade of that goes forward of its a sign that the blacks bulging.	ow near the of the fifth
			cycles		or dark spots after th h 250 cycles or each s OOth cycle.	
					spot in a dark spot af e the engine within 25	
			NOTE:		within a dark spot car ng which is caused by	
				the 1,900th cy 25 cycles.	cle, examine the blade	es for bulges
			forwar		n 30 blades with dark tip cooling air hole, les.	•
			e) If you	find a bulge	remove the engine with	in 10 cycles.
	(e			escope through es as follows.	the port and examine	the HPT
		1)	erosion, corub, airfo	oating loss, l il growth, blo	dents, cracks, tip da iberated materials, be cked cooling holes, su of foreign object met	ent tip, tip ulfidation and
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		2) You must examine each blade, and rotate the high rotor using hand or foot operated equipment.									
		(f) Use these limits when you examine the 2nd-stage HPT blades:									
			NOTE:	The first sign of corrosion on a blade is a stain or mark on the outer surface of the Bl green to white and blue color stain is a signalfidation corrosion.	ade. A						
			NOTE:	Blade erosion removes the surface layer which protection. This will quickly cause deterior the inner alloy.							
			NOTE:	A sign of airfoil growth is when the length is increased and the perimeter of the middle decreased.							
			NOTE:	The loss of the blade coating can possibly r	esult in						
				decreased life of the base alloy. This condition, as well as hot corrosion that attach (sulfidation), can affect the blade reliability.							
			Li	damage is worse than the decreased time insp mits, remove the engine from operation before cle.							
			th	these conditions will quickly occur, immedia ne engine from operation: part failure, or an nterial will break off.	-						

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)								
			2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS					
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW				
Nicks and Dents	А	None	On each blade, one nick or dent that is not more than 0.025 inch (0.635 mm) in length or diameter.	For imminent material liberation, remove engine immediately.				
NOTE: No crack that is with a nick or dent is permitted,	В	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.250 inch (6.350 mm) in length or diameter.					
unless it is in the limits for Axial or Radial	С	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.300 inch (7.620 mm) in length or diameter.					

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MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

PERMITTED WITH PERMITTED WITH EXCEEDED, REMOVE CONDITION BLADE REGULAR DECREASED ENGINE WITHIN 5 CYCLES OR			Table 605	(Figure 621)				
CONDITION FOUND READ FOUND AREA PERMITTED WITH REGULAR TIME INSPECTIONS TIME INSPECTIONS Surface Layer Deterior— ation, Burned Areas Erosion C C Same as A, B One defect on each blade, in these limits: 1) Surface layer deterioration on the airfoil no more than 0.750 inch (19.050 mm) in diameter, 0.442 square inch (285 square mm) in area, or 2) Leading edge burned areas no more than 0.400 inch (10.160 mm) in diameter, 0.126 square inch (81 square mm) in area. C Same as A, B One defect on each blade if it is in the burned or broken hole								
Layer Deterior— ation, Burned Areas Erosion C Same as A, B limits: 1) Surface layer deterioration on the airfoil no more than 0.750 inch (19.050 mm) in diameter, 0.442 square inch (285 square mm) in area, or 2) Leading edge burned areas no more than 0.400 inch (10.160 mm) in diameter, 0.126 square inch (81 square mm) in area. C Same as A, B One defect on each blade if it is in the burned or broken hole			REGULAR	DECREASED	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW			
is in the burned or broken hole	Layer Deterior— ation, Burned Areas		limits: 1) Surface layer the airfoil no inch (19.050 r 0.442 square mm) in area, (2) Leading edge k more than 0.40 in diameter, (81 square mm)	 limits: 1) Surface layer deterioration on the airfoil no more than 0.750 inch (19.050 mm) in diameter, 0.442 square inch (285 square mm) in area, or 2) Leading edge burned areas no more than 0.400 inch (10.160 mm) in diameter, 0.126 square inch (81 square mm) in area. 				
			Cume us Ny D	each blade if it is in the burned or broken hole				

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MECH INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

	Table 605 (Figure 621)	
		2ND-STAGE HPT BL CONTINUE-IN-SERVICE	
BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Α	None. IMMEDIATELY REMOVE		
В	None	All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks.	For imminent material liberation, remove engine immediately.
С	All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are permitted.	All cracks on the leading edge or airfoil at tip are permitted. Break—through to internal cavity with open area to breakthrough limit is permitted.	For imminent material liberation, remove engine immediately.
	AREA B	PERMITTED WITH REGULAR TIME INSPECTIONS A None. IMMEDIATELY REMOVE B None C All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are	PERMITTED WITH REGULAR TIME INSPECTIONS A None. IMMEDIATELY REMOVE THE ENGINE. B None All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks. C All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are C All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are limit is

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AIRLINE CARD NO.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

		Table 605	(Figure 621)			
			2ND-STAGE HPT BL CONTINUE-IN-SERVICE			
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW		
Holes that Broken or Burned thr to the Int	А, В	None. IMMEDIATELY REMOV	THE ENGINE.			
to the Int Space	С	None	On each blade, one piece that is gone from the lip or one hole that is less than 0.125 square inch (81 square mm) in area. No more than five blades with these holes on each rotor.	For imminent material liberation, remove engine immediately.		
Bent Tip	C	Permitted if other	r conditions are	Remove Engine Immediately		
Trailing Edge Cooling Air Slots	А	A maximum of one cooling air slot lis permitted.		Remove engine immediately		
Blockage	В, С	trailing edge coo	A maximum of two non—adjacent trailing edge cooling air slots blocked per blade is permitted.			
Tip Rub or Plasma Spray Loss	С		Any amount is acceptable if not rubbed into the internal cavity.			
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AIRLINE CARD NO.



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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

	Table 605 (Figure 621)									
			2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS							
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW						
Liberated Blade Parent Material	A, B and C	None	None except as defined for "Material breakthrough into internal cavity" observed condition	Remove engine immediately						
Airfoil Growth (as evid— enced by: bent or displaced 2nd stage blade(s) relative to adjcent blades in rotor Abnormal/ excessive tip rub	A, B and C	None See Fig. 621A	None See Fig. 621A	Remove engine immediately						

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)									
			2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS						
CONDITION FOUND	BLADE AREA	PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW					
Wavy/ deformed trailing edge									
Necking or thinning of airfoil profile at midspan region									
Cracks in the midspan trailing edge cooling hole openings									

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BORESCOPE

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MECH	INSP							
		<u>No. 15 -</u>	- HPT	(1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection				
			(g)	Remove the PWA 86441 guide tube from the AP-8 ports.				
			(h)	Apply Silver Goop to the plug threads.				
			(i)	Install the plug with a new AP-8 gasket.				
			(j)	Tighten the AP-8 plugs.				
			(k)	Install lockwire on the AP-8 plug.				
		(7)	Inst	all the access port plug AP-9 (Fig. 605A):				
			(a)	Apply silver goop to the plug threads.				
			(b)	Install the plugs with new AP-9 washers.				
			(c)	Tighten the AP-9 plugs.				
			(d)	Install lockwire on the AP-9 plug.				
		(8)	Inst	call the access port AP-10 (Fig. 605A):				
			(a)	If the access port AP-10 is disassembled, assemble it for the installation.				
				NOTE: The plug assembly is not usually disassembled. If you will examine the 3rd-Stage LPT vanes and blades, do not install the AP-10 access plug.				
				 When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave 				

2)	From the washer	side, put	the plug	in the	assembled	washer
	and cover	<i>,</i> ,				

surface of the washer is adjacent to the cover.

3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) With the split side to the inside, install the plug with a new AP-10 gasket.

<u>NOTE</u>: The plug will be in the case boss and the spring washer will push the plug to the inside.

- (c) Attach the plug stop cover to the plug (AP-10).
- (d) Fully clean the bolt threads and the plug threads with petroleum solvent.

NOTE: This removes unwanted carbon and all the used anti-seize paste (PO6-054).

- (e) Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.
- (f) With the bolts, attach the plug stop to the access port boss (Fig. 618).
- (g) Tighten the bolts (See Table 605A).
- (h) Install lockwire on the AP-10 plug.
- (9) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157);
 Install the AP-11 plug in the No. 3 TVBCA duct (Fig. 605A).
 - (a) Install the gasket in the borescope plug groove.
 - (b) Install the AP-11 plug at the aft elbow of the No. 3 TVBCA duct.
 - (c) Engage the AP-11 plug end in the inner hole of the HPT to seat it.
 - (d) Install the bolts, threads lubricated with engine oil.
 - (e) Tighten the bolts, in a sequence that is not circular (See Table 605A).
 - 1) Install lockwire on the plug.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

	AP-10 and AP-11 Borescope Plug Installation Data Table 605A											
AP Number And Location	Gasket Required	Bolt Locking Method	Bolt Replacement Lubricant	Bolt Torque Value lb-in (N.m)								
AP-10 Yes HPT ST1146-08 2nd- Stage		Lockwire (MS9226-04)	PO6-O23 Silver Goop	54.000 - 60.000 (6.101 - 6.779)								
AP-11 Lower TCA Tube	Yes PN ST1142-011 (Gasket)	Self-locking	PO3-OO1 Engine Oil	75.000 - 85.000 (8.474 - 9.604)								

(10) Do this procedure: Put the Airplane Back to its Usual Condition.

<u>LPT Vanes (3rd-Stage)-Inspection</u>

A. General

- (1) This inspection is the visual check of the 3rd-stage vanes in the primary gaspath of the LPT.
- The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.

Equipment В.

- (1) AP-10 Gasket PWA ST1146-08
- (2) Puller PWA 86081 (For removal of the AP-10 Plug Assembly)
- (3) Wedge (Block Fan Blade) PWA 102757 (3 are required during windy conditions)
- (4) Packing Preform AS3209-121

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- (5) Crank Pad Cover Packing PWA AS3204-121
- C. Consumable Materials
 - (1) D50124 Anti-seize paste (P06-054)
 - (2) G00966 Kerosene VV-K-211
 - (3) B00776 Petroleum Solvent P-D-680, Type I
 - (4) D00244 Antiseize compound, high temperature -Silver Goop
- Do the LPT Vane Inspection. D.
 - CAUTION: WHEN YOU EXAMINE THE VANES, FIND THE CAUSE OF ALL OF THE FOD TO MAKE SURE THAT THE LPC IS SERVICEABLE. DAMAGE IN THIS AREA CAN BE AN INDICATION OF A MORE DANGEROUS PROBLEM. OTHER COMPONENTS CAN POSSIBLY BE DAMAGED.
 - USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION CAUTION: ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.
 - (1) Do this procedure: Prepare for the Borescope Inspection.
 - WARNING: DO NOT DO A BORESCOPE INSPECTION IF THE WIND IS MORE THAN 3 - 5 MPH (4.8 - 8 KPH). DURING WINDY CONDITIONS, THE N1 ROTOR CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.
 - INSTALL THE PWA 102757 WEDGES BETWEEN THE FAN BLADES WHEN THE WARNING: WIND IS LESS THAN 3 - 5 MPH (4.8 - 8 KPH). IF YOU DO NOT INSTALL THE WEDGES DURING MILD WIND CONDITIONS, THE N1 CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.
 - (2) If the wind condition is less than 3 5 MPH (4.8 8 KPH), install the wedges as follows.

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			(a)	Do not install the wedge if the wind condition is more than 3 - 5 MPH (4.8 - 8 KPH).
			(b)	Install two or three wedges between the fan blades and the fan case at approximately the 6 o'clock position.
			(c)	Make sure the wedge is installed tight enough to prevent the fan blades from turning, but it must not raise the fan blades up.
			(d)	The red warning streamer must go towards the front of the engine inlet.
			(e)	If it is necessary to turn the N1 rotor to complete the borescope inspection, do the steps as follow.
				1) Remove the wedges.
				2) Turn the N1 rotor by hand and install the wedges again.
				Do this procedure again until the borescope inspection is complete.
		(3)		ve the plug from the LPT HPT access port AP-10; refer to 605 and 618 for the access port location and the borescope

(b) Use a PWA 86081 Puller to remove, as an assembly, the plug, the plug stop, the spring washer, and the cotter pin; discard the gasket.

NOTE: Do not remove the cotter pin.

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COMBUSTION LINER/HP AND LP TURBINES

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WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(4) Put the borescope through the access port to examine the 3rd-stage LPT vanes for nicks, dents, cracks, and other FOD.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE—IN—SERVICE LIMITS.

CAUTION: IF YOU FIND DAMAGE THAT IS WORSE THAN THE CONTINUE-IN-SERVICE LIMITS, OR PIECES OF THE VANE WILL FALL OFF, REMOVE THE ENGINE IMMEDIATELY. THIS TYPE OF DAMAGE CAN CAUSE MORE DAMAGE TO THE ENGINE IF IT IS NOT REPAIRED.

- (5) Compare the damage you find with the continue-in-service limits shown in Fig. 622 (sheet 1).
 - (a) If there has been a sudden increase in EGT, check for a possible missing or liberated LPT 3rd-stage outer transition duct segment.
 - (b) No missing or liberated outer transition duct segments are permitted.
- (6) Install the access port AP-10 (Fig. 605A):

<u>NOTE</u>: If you will do an inspection of the LPT 3rd-stage blades, do not install the access port AP-10.

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		(a)	If the access port AP-10 is disassembled, assemble it for the installation.
			<u>NOTE</u> : The plug assembly is not usually disassembled.
			When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.
			From the washer side, put the plug in the assembled washer and cover.
			3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.
		(b)	With the split side to the inside, install the plug with a new AP-10 gasket.
			NOTE: The plug will be in the case boss and the spring washer will push the plug to the inner side.
		(c)	Attach the plug stop cover to the plug (AP-10).
		(d)	Fully clean the bolt threads and the plug threads with petroleum solvent.
			NOTE: This removes unwanted carbon and all used anti-seize paste.
		(e)	Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.
		(f)	Attach the plug stop to the access port boss with the bolts (Fig. 618).
			1) Tighten the bolts.
		(g)	Install lockwire on the AP-10 plug.
	(7)	Do t	his procedure: Put the Airplane Back to its Usual Condition.
	5. <u>LPT Blad</u>	les (3	rd-Stage) - Inspection

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- Put The Airplane Back to its Usual Condition
 - A. References
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 78-31-00/201, Thrust Reverser System
 - Put the Airplane Back to its Usual Condition

OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE WARNING: THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Close the thrust reverser (AMM 78-31-00/201).
- (2) Close the core cowl panel (AMM 71-11-06/201).
- (3) Close the fan cowl panel (AMM 71-11-04/201).
- (4) For the left engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
 - (a) 11D19, ENGINE START CONT L
- (5) For the right engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:
 - (a) 11D2O, ENGINE START CONT R
- (6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

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ANGULAR RECOMMENDED **POSITION** MAXIMUM PROBE **CLOCKWISE** PART(S) IN VIEW DIAMETER ACCESS PORT FROM REAR **GASPATH LOCATION** FOR INSPECTION IN/mm LPC COMPRESSOR 1ST C-VANE THRU FAN ALL INLET 1ST C-BLADE 245° REAR OF 4TH C-BLADE AP-1 4TH-STAGE COMPRESSOR VANE FRONT OF 4TH C-VANE AP-2 233° 5TH-STAGE REAR OF 5TH C-BLADE 0.270/6.8 COMPRESSOR VANE FRONT OF 6TH C-BLADE 231° 6TH-STAGE REAR OF 6TH C-BLADE 0.270/6.8 AP-3 FRONT OF 7TH C-BLADE COMPRESSOR VANE AP-4 127° 8TH-STAGE REAR OF 8TH C-BLADE 0.270/6.8 FRONT OF 9TH C-BLADE COMPRESSOR VANE AP-5 REAR OF 10TH C-BLADE 0.270/6.8 214° 10TH-STAGE COMPRESSOR VANE FRONT OF 11TH C-BLADE 98° REAR OF 12TH C-BLADE 0.270/6.8 AP-6 12TH-STAGE COMPRESSOR VANE FRONT OF 13TH C-BLADE REAR OF 14TH C-BLADE AP-7 80° 14TH-STAGE 0.270/6.8 COMPRESSOR VANE FRONT OF 15TH C-BLADE 45°, 128°, 172°, 225°, 277°, 338° AP-8 COMBUSTION CHAMBER FUEL NOZZLE 0.444/11.3 COMBUSTION CHAMBER 1ST TURBINE VANE AP-9 93° 0.270/6.8 COMBUSTION CHAMBER FRONT OF 1ST T-VANE FRONT OF 1ST T-BLADE TRANSITION DUCT AP-10 139° REAR OF 2ND T-BLADE 0.270/6.8 FRONT OF 3RD T-VANE AP-11 STAGE 2 TURBINE BLADE REAR OF 1ST T-BLADE 0.444/11.3 215° FRONT OF 2ND T-BLADE THRU EXHAUST ALL 6TH T-BLADE CASE STRUTS 6TH T-VANE

Borescope Access Port Data Figure 605 (Sheet 1)

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ACCESS PORT	NOTES
THRU FAN AP-1 AP-2 AP-3	
AP-4 AP-5 AP-6	[2] [3]
AP-7 AP-8, 45° AP-8, 128° AP-8, 172°	[5] [5] [5] [9]
AP-8, 225° AP-8, 277° AP-8, 338°	5> 4> 5>6>
AP-9 AP-10 AP-11	8>

- ACCESS IS THROUGH FOURTEEN 2.5 BLEED VALVE OPENINGS IN THE INNER LINING OF THE FAN EXIT CASE. A FLEXIBLE PROBE IS NECESSARY AT THIS ACCESS PORT.
- BORESCOPE MUST BE ANGLED 5° AFT OF THE PLANE THAT IS AT 90° TO THE ENGINE CENTERLINE TO INSERT PROBE.
- BORESCOPE MUST BE ANGLED 15° AFT OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
- BORESCOPE MUST BE ANGLED 21° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
- BORESCOPE MUST BE ANGLED 7.5° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
- 6 RIGHT ANGLE EYEPIECE RECOMMENDED.
- 7 ALLOW 3-4 INCHES (76-102 mm) FOR THE EYEPIECE LENGTH.
- 8 OPTIONAL BORESCOPE PORT LOCATION
- 9> RIGHT ANGLE EYEPIECE IS NECESSARY.

Borescope Access Port Data Figure 605 (Sheet 2)

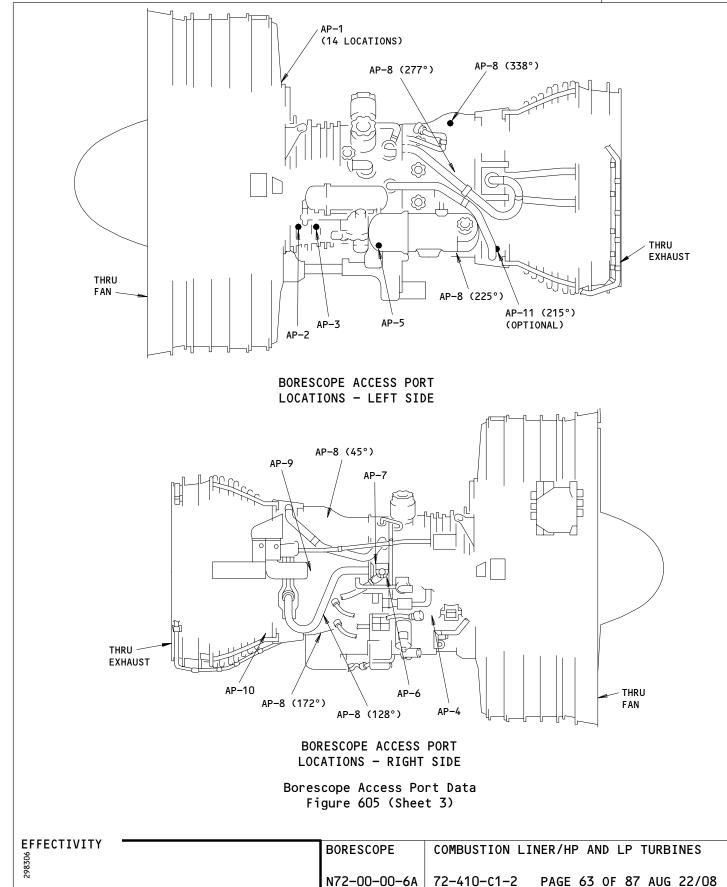
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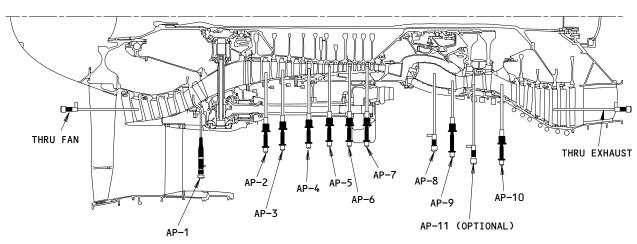
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ACCESS PORT GASPATH LOCATION

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Borescope Access Port Data Figure 605 (Sheet 4)

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ACCESS PORT	ENGINE LOCATION	PACKING/ GASKET	LOCKING METHOD	PLUG LUBRICANT	TORQUE VALUE INCH-POUNDS (NEWTON-METERS)
AP-2	HPC 5TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
			KEY WASHER (PN 53H027) FOR LATER PLUG		
AP-3	HPC 6TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
			KEY WASHER (PN 53H028) FOR LATER PLUG		
AP-4	HPC 8TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	2>4>6>	175-190 (19.8-21.5)
AP-6	HPC 12TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	2>4>6>	175-190 (19.8-21.5)
AP-8 (45)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (128)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (172)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (225)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (277)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (338)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-9	REAR OF DIFFUSER CASE	WASHER	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-10	2ND-STAGE HPT BLADE	GASKET	LOCKWIRE	SILVER GOOP	54-60 (6.1-6.8)
AP-11 5	1ST-STAGE HPT BLADE	GASKET	LOCKWIRE	ENGINE OIL ON BOLT THREADS	75-85 (8.5-9.6)

1 ENGINES PRE-PW-SB 72-675

4 ENGINES POST-PW-SB 72-708

ENGINES POST-PW-SB 72-675
ENGINES PRE-PW-SB 72-708

5 ENGINES POST-PW-SB 72-157

6 ENGINES POST-PW-SB 72-755

Borescope Access Port Installation Data Figure 605A

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A 72-410-c1-2 PAGE 65 OF 87 AUG 22/08

BOEING CARD NO.

72-410-C1-2

AIRLINE CARD NO.

SAS



AP-8 (338°)

SEE (F)

SEE (A)

AP-8 (45°)

SEE (A)

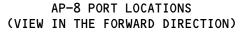
AP-8 (225°)

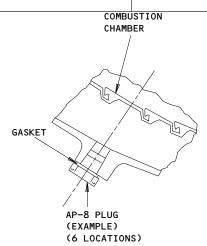
AP-8 (128°)

SEE (B)

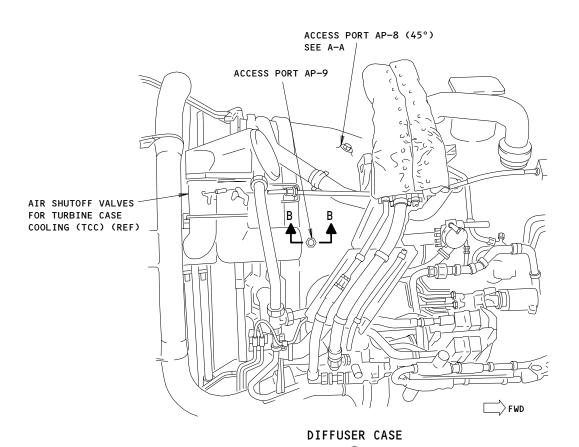
AP-8 (172°)

SEE (C)





A-A



Combustion Chamber Access Ports Figure 611 (Sheet 1)

EFFECTIVITY

BORESCOPE

COMBUSTION LINER/HP AND LP TURBINES

6A 72-410-C1-2 PAGE 66 OF 87 AUG 22/08

N72-00-00-6A

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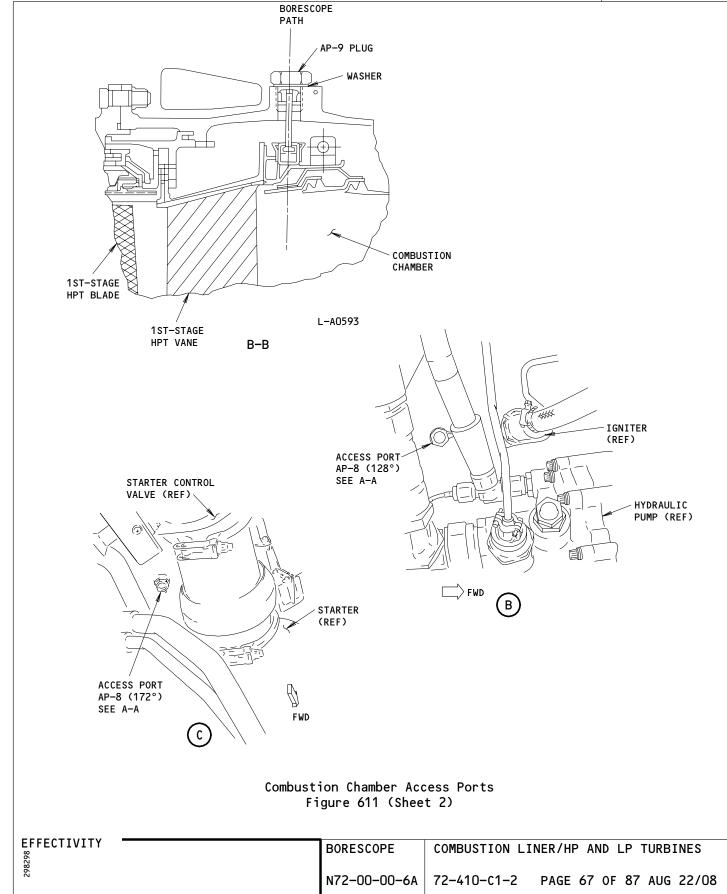
BOEING CARD NO.

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AIRLINE CARD NO.

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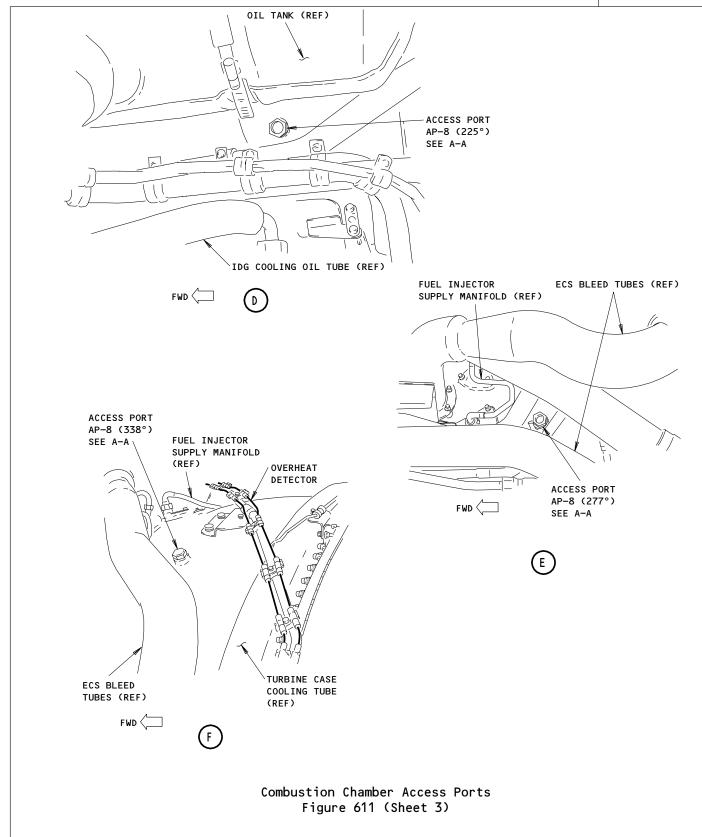
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COMBUSTION LINER/HP AND LP TURBINES

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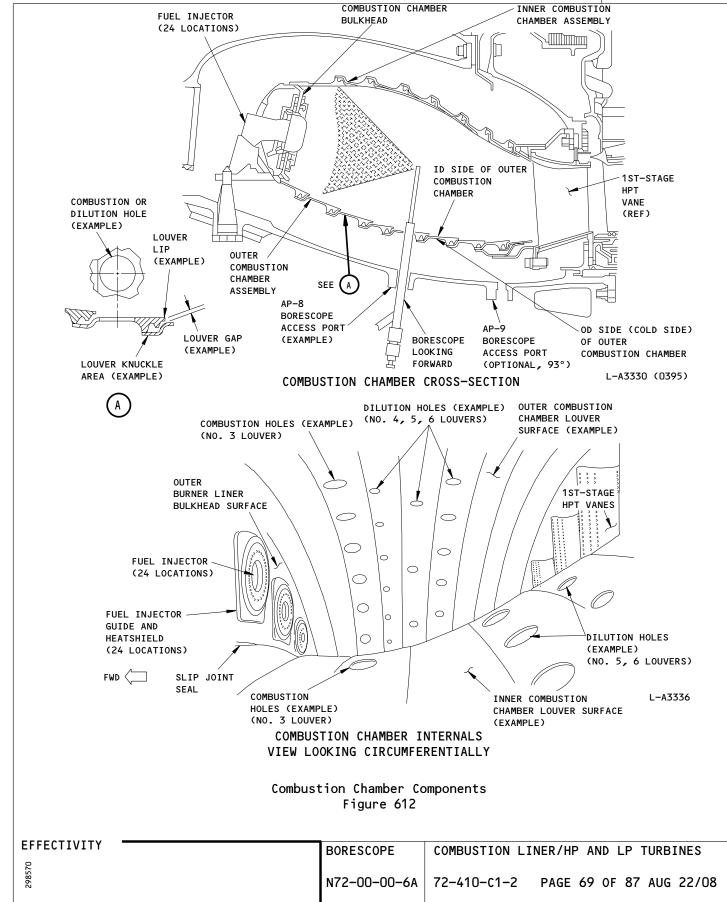
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EFFECTIVITY

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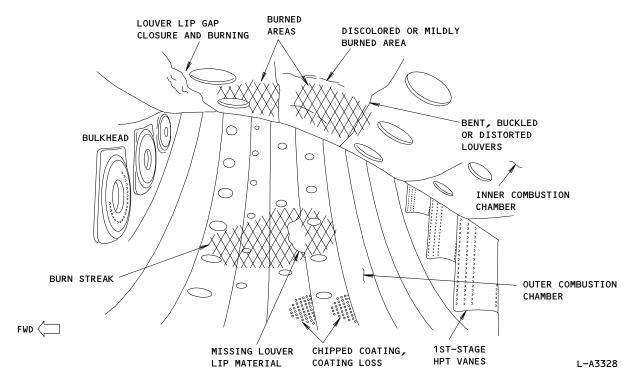
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IS NOT PERMITTED.

767 TASK CARD

CONTINUOUS AXIAL CRACKS, DO AN OD (COLD SIDE) INSPECTION. IF YOU CAN NOT DO AN OD INSPECTION, THESE CRACKS MUST BE EXAMINED AT THE DECREASED INTERVAL RATE. CONTINUOUS AXIAL CRACK INNER COMBUSTION CHAMBER BULKHEAD 0 OUTER COMBUSTION FWD (0 CHAMBER \bigcirc INDIVIDUAL AXIAL CRACK CONTINUOUS AXIAL CRACKS (MORE THAN 3 LOUVERS), YOU MUST DO AN OD (COLD SIDE) INSPECTION. IF 1ST-STAGE L-A3324 (0395) YOU CAN NOT DO AN OD INSPECTION, THIS CRACK HPT VANES



VIEW IN THE CIRCUMFERENTIAL DIRECTION

Inner and Outer Combustion Chamber Distress Figure 613 (Sheet 1)

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES
N72-00-00-6A 72-410-c1-2 PAGE 70 OF 87 AUG 22/08

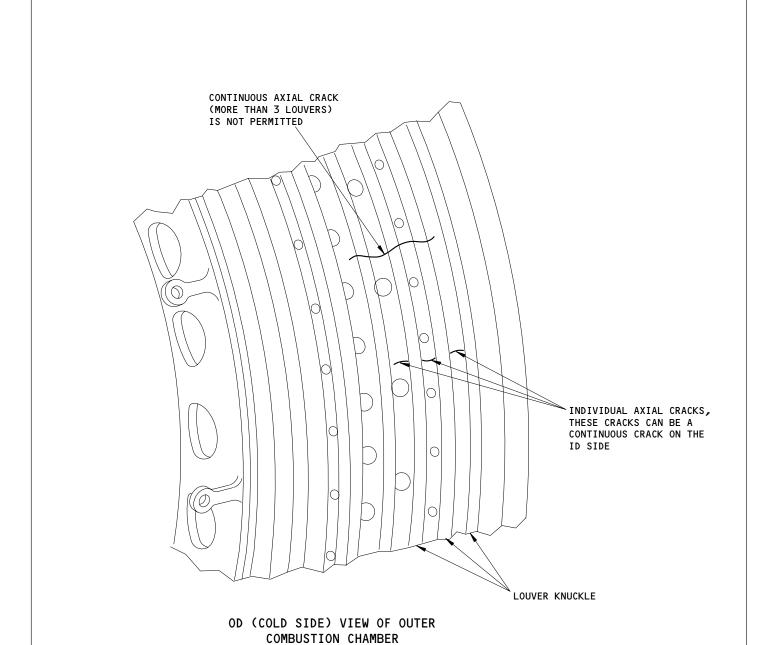
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Inner and Outer Combustion Chamber Distress Figure 613 (Sheet 2)

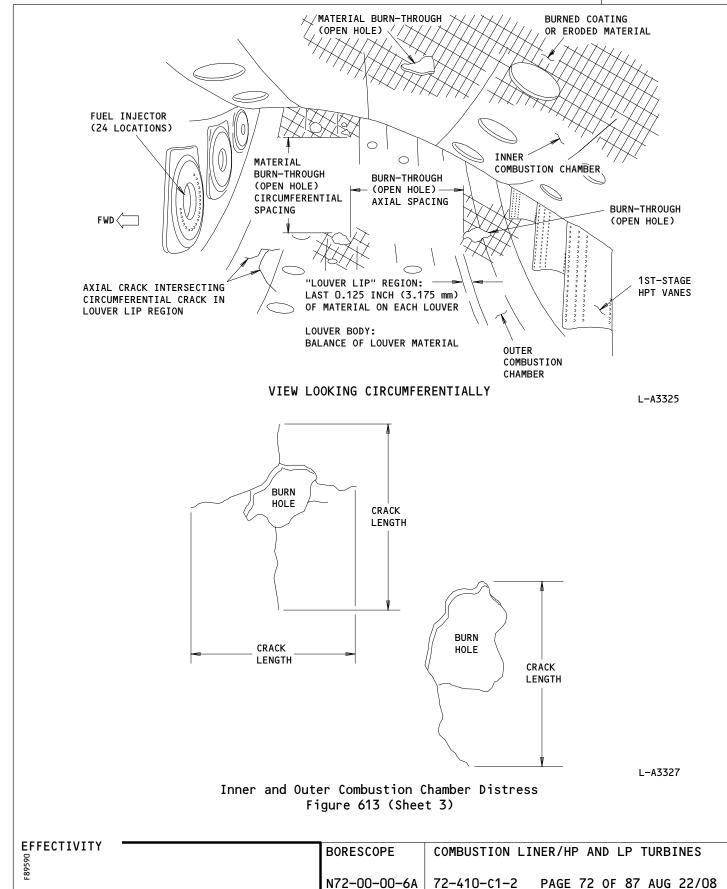
EFFECTIVITY BORESCOPE COMBUSTION LINER/HP AND LP TURBINES N72-00-00-6A 72-410-c1-2 PAGE 71 OF 87 AUG 22/08

72-410-C1-2

AIRLINE CARD NO.

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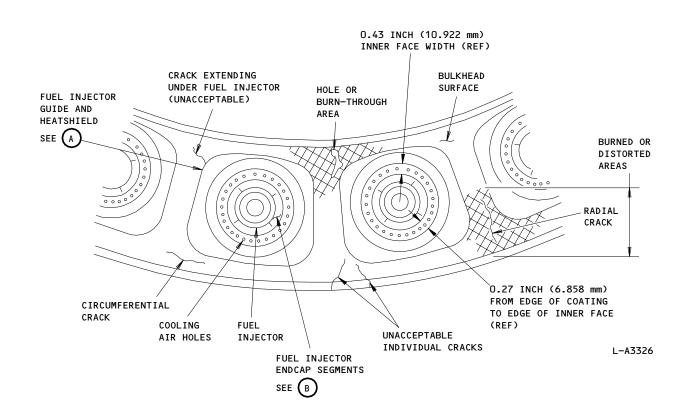


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COMBUSTION CHAMBER BULKHEAD

Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress Figure 614 (Sheet 1)

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A 72-410-C1-2 PAGE 73 OF 87 AUG 22/08

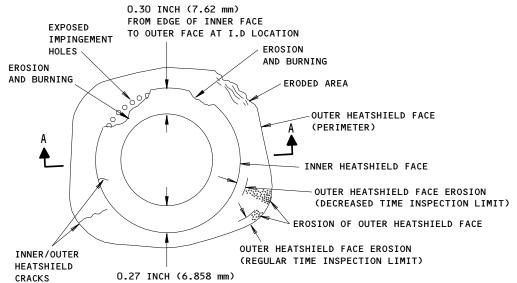
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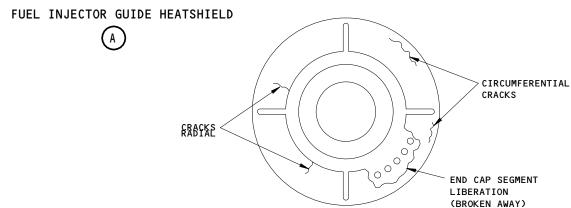
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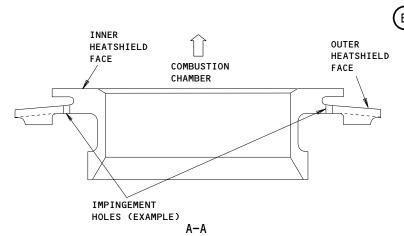


FROM EDGE OF INNER FACE
TO OUTER FACE AT O.D LOCATION

L-A3321



FUEL INJECTOR ENDCAP SEGMENTS



Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress Figure 614 (Sheet 2)

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

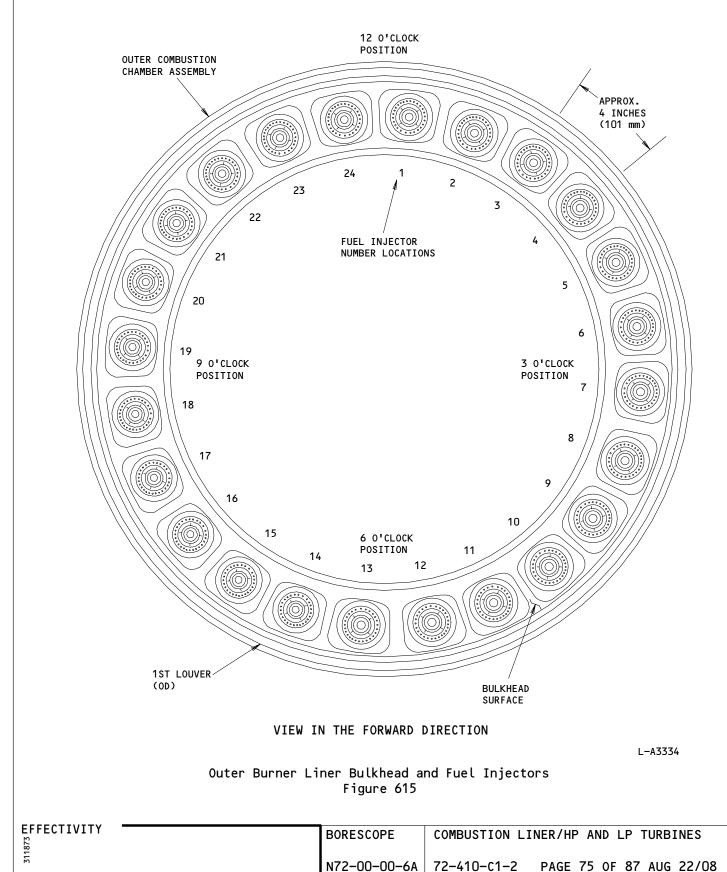
N72-00-00-6A 72-410-C1-2 PAGE 74 OF 87 AUG 22/08

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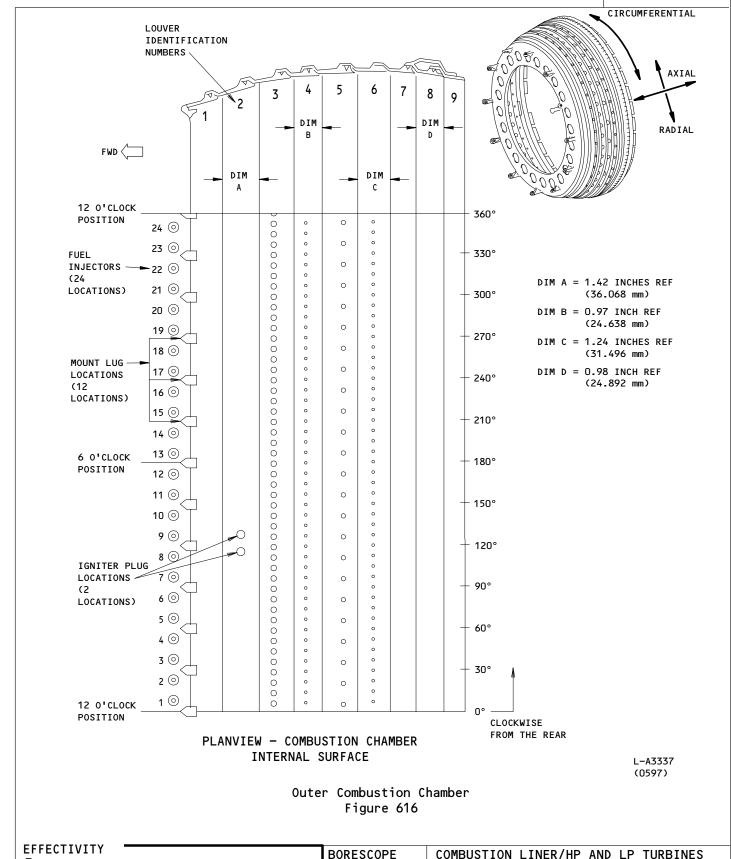


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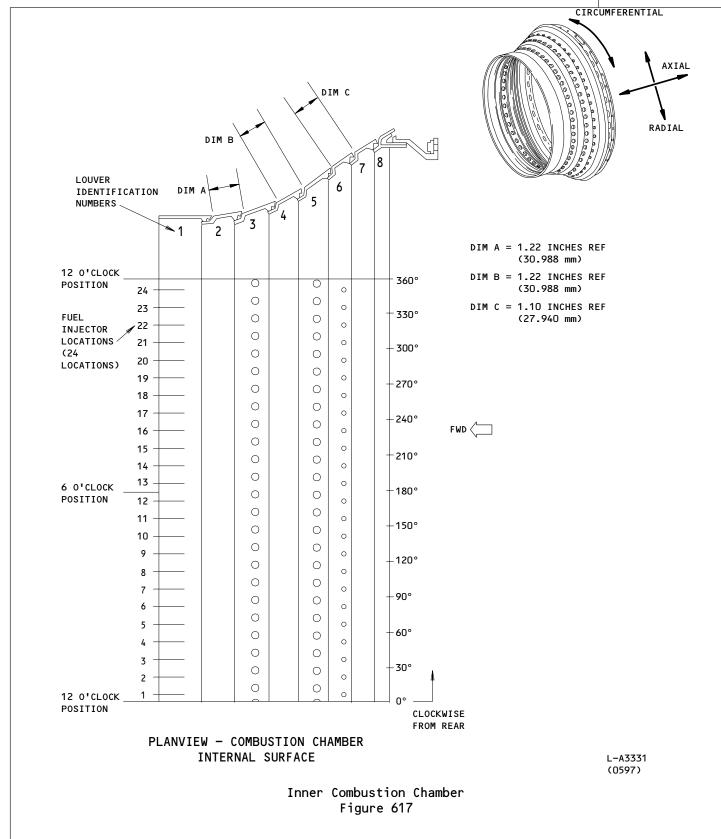
COMBUSTION LINER/HP AND LP TURBINES

PAGE 77 OF 87 AUG 22/08

72-410-C1-2

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TASK CARD



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EFFECTIVITY

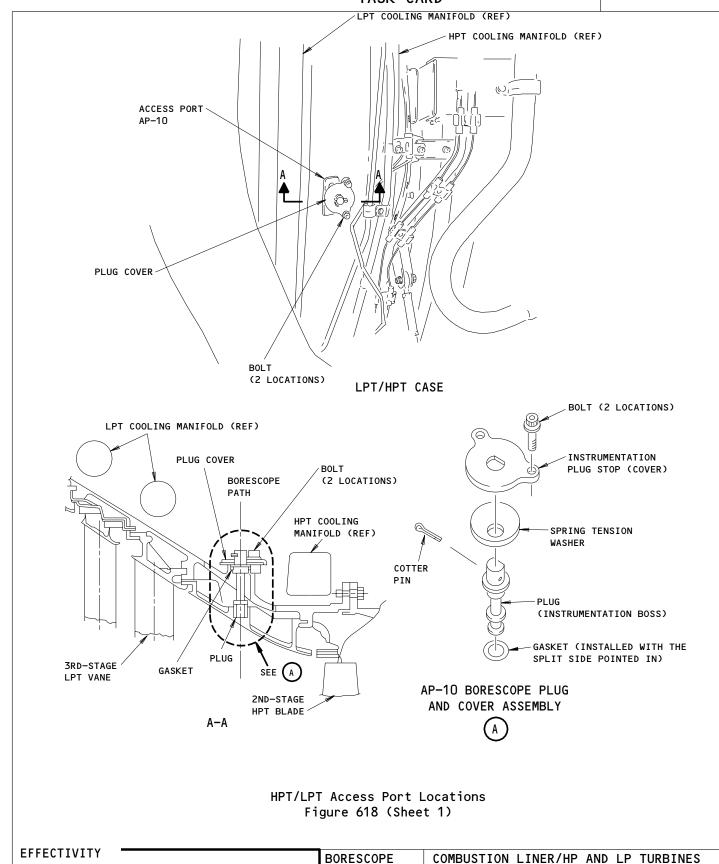
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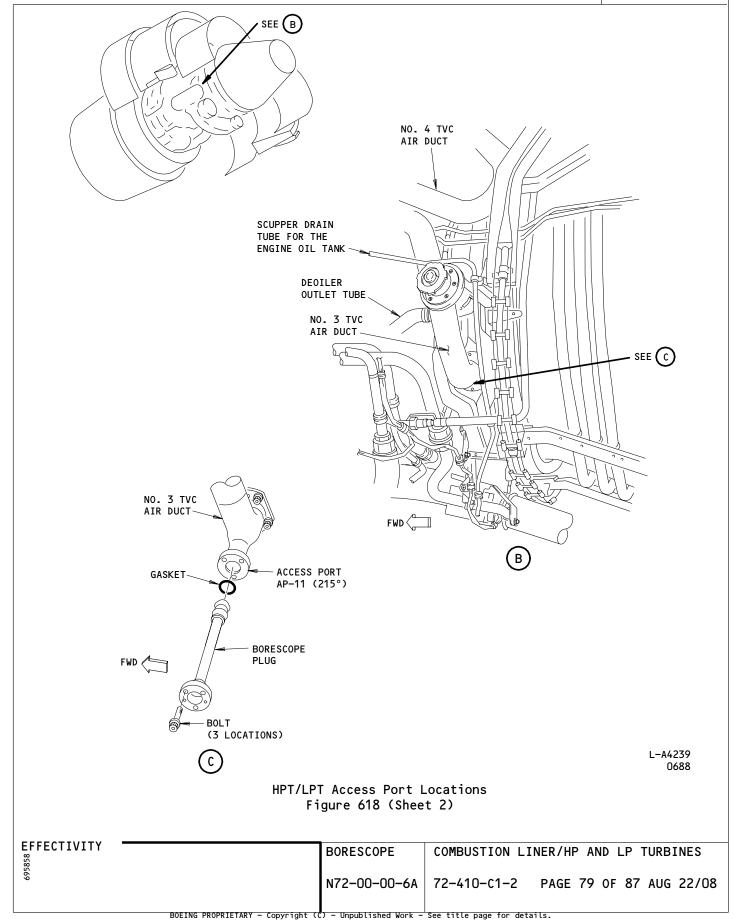
PAGE 78 OF 87 AUG 22/08

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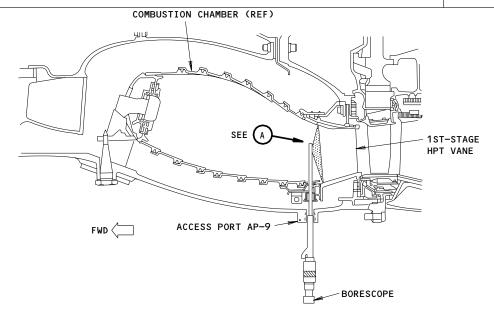
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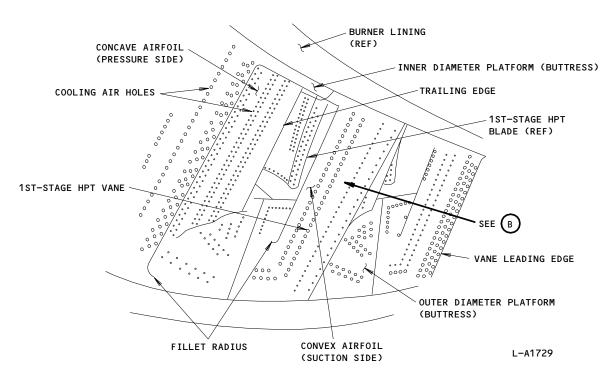
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VIEW OF 1ST-STAGE HPT VANES THROUGH BORESCOPE

L-A1729 (0192)

1st-Stage HPT Vane Continue-In-Service Limits Figure 619 (Sheet 1)

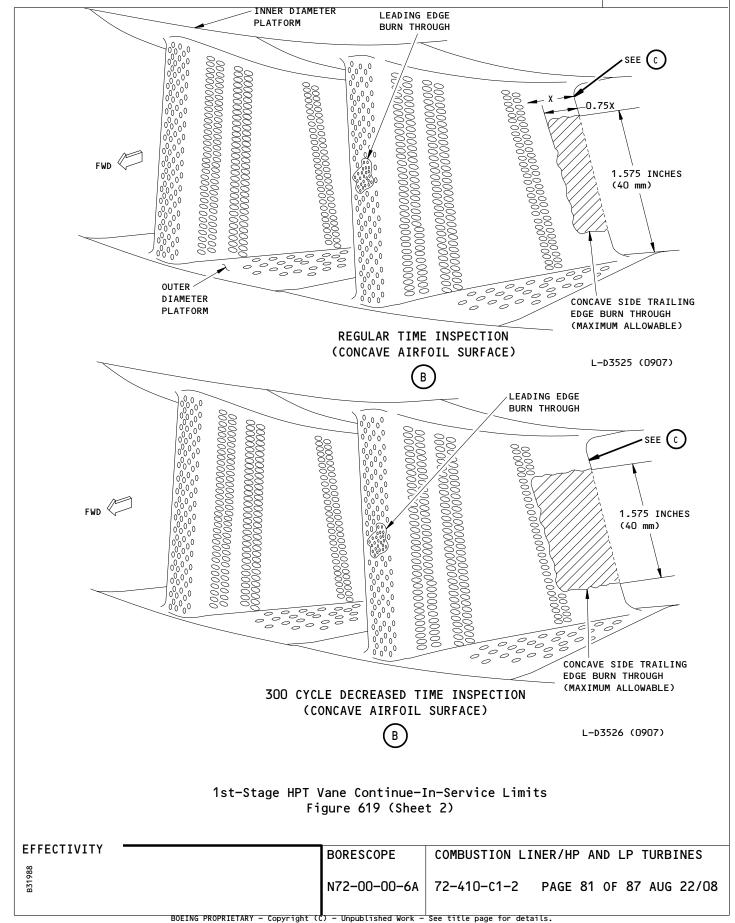
EFFECTIVITY COMBUSTION LINER/HP AND LP TURBINES BORESCOPE N72-00-00-6A 72-410-C1-2 PAGE 80 OF 87 AUG 22/08

72-410-C1-2

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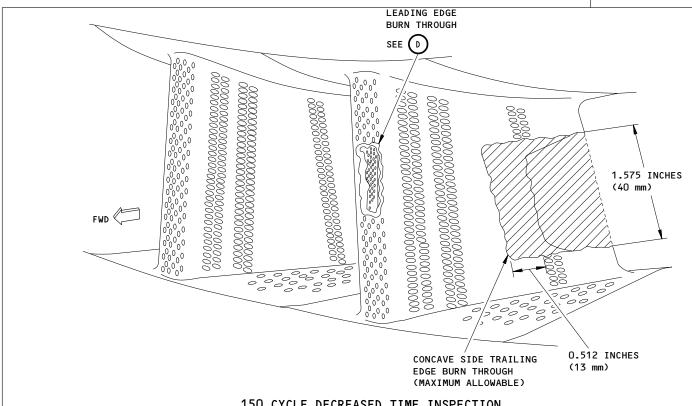
FOEING 767 TASK CARD



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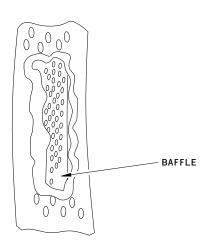
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BOEING 767 TASK CARD



150 CYCLE DECREASED TIME INSPECTION (CONCAVE AIRFOIL SURFACE)





LEADING EDGE BURN THROUGH



L-D3527 (0907) PWV

1st-Stage HPT Vane Continue-In-Service Limits Figure 619 (Sheet 3)

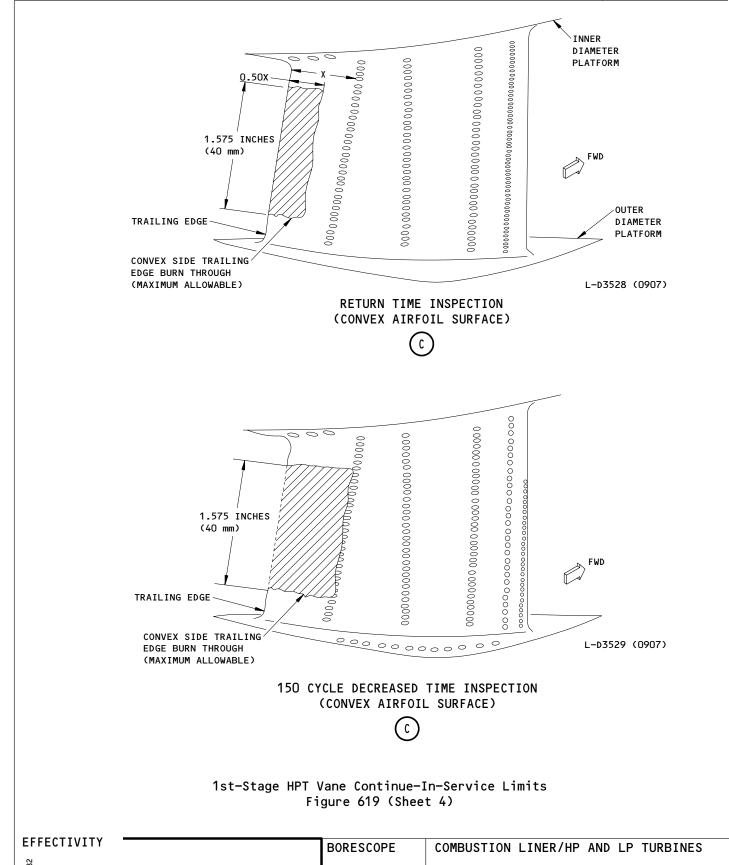
EFFECTIVITY BORESCOPE COMBUSTION LINER/HP AND LP TURBINES N72-00-00-6A 72-410-c1-2 PAGE 82 OF 87 AUG 22/08

72-410-c1-2

AIRLINE CARD NO.

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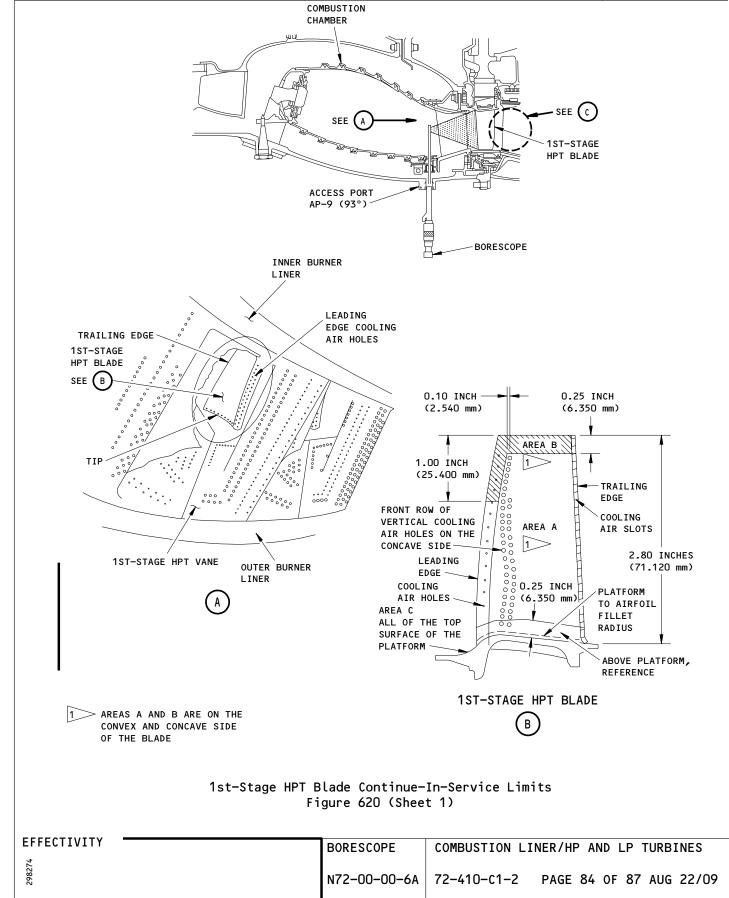
PAGE 83 OF 87 AUG 22/08

72-410-c1-2

AIRLINE CARD NO.

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767 TASK CARD



72-410-C1-2

COMBUSTION LINER/HP AND LP TURBINES

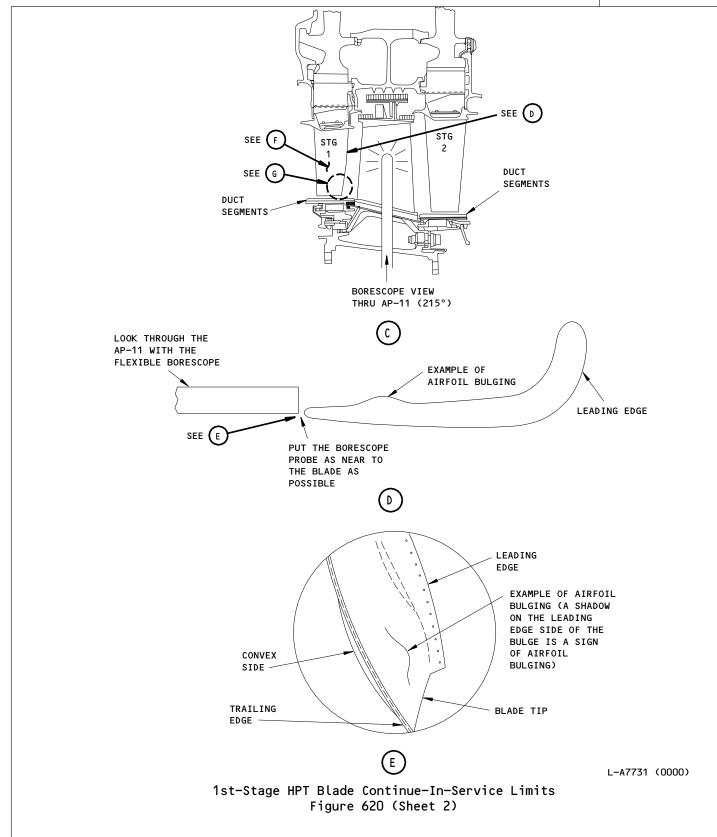
PAGE 85 OF 87 AUG 22/08

72-410-C1-2

AIRLINE CARD NO.

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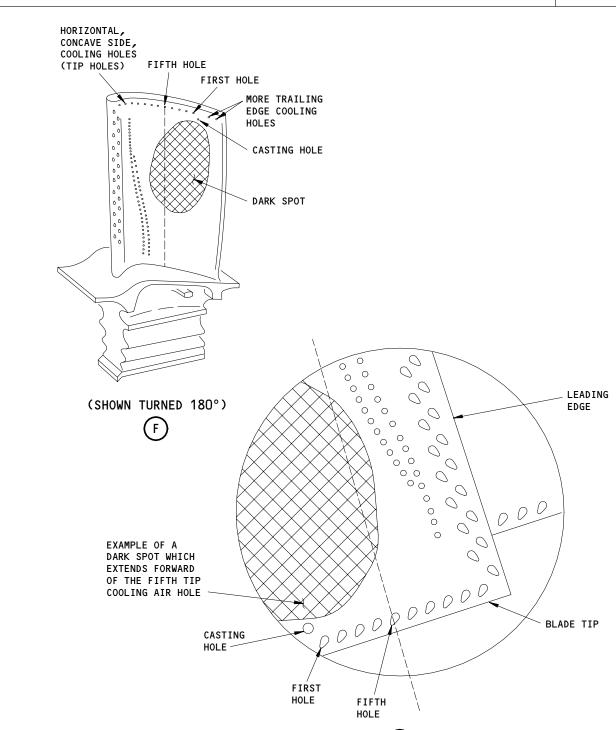
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L-A7732 (0000)

1st-Stage HPT Blade Continue-In-Service Limits figure 620 (Sheet 3)

BORESCOPE COMBUSTION LINER/HP AND LP TURBINES

N72-00-00-6A 72-410-C1-2 PAGE 86 OF 87 AUG 22/08

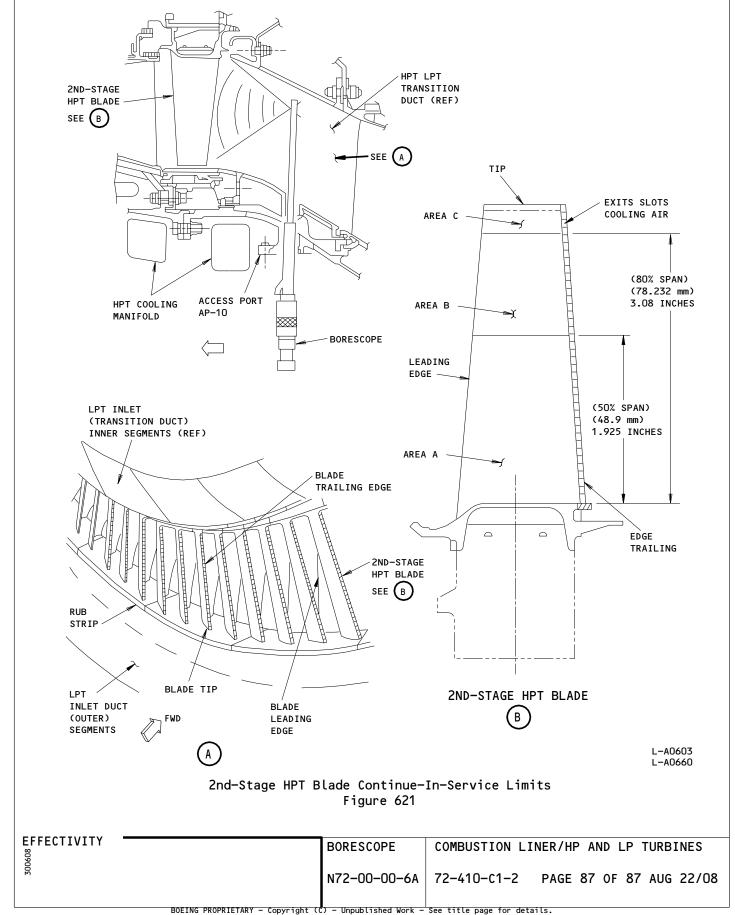
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SKILL	WORK AREA	RELATED TASK	INTERV	AL	PHASE	MPD REV	TASK CARD REVISION		
SHOPS			LIFE LMT	NOTE	99XXX	005	FEB 10/88		
TASK		TITLE		STRUCTURAL ILLUSTRATION R		AF AIRPLAN	PPLICABILITY E ENGINE		
REPLAC	E HI	P TURBINE ROTATING	COMPONENTS			ALL	4000		
	ZONES			ACCESS PANELS		/\	4000		
	AND BLADI	THE HIGH PRESSURE TERETAINING PLATES. NOTE: AT MANUFACT MANUAL, CHA	「URER'S LIFE LIMI			N72-5	0-00-A		

EFFECTIVITY

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-	WORK ARE	A	RI	LATED TASK				INTERVAL
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BOEING CARD NO. 72-414-01-1

AIRLINE CARD NO.

TASK CARD

PHASE REV REVISION ENGIN | ENGINE 1 00250 CYC 006 FEB 10/92 10101 STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

CHECK/INSP 6TH STAGE TURBINE VANES AND BLADES ALL 4000

ACCESS PANELS

ZONES

411

MECH INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 SIXTH STAGE TURBINE VANES AND BLADES FOR CONDITION.

N72-53-01-6A

<u>General</u> 1.

This procedure contains information for the visual inspection of the 6th-stage turbine blades and vanes. To do the inspection, look forward through the turbine exhaust area.

Do the 6th-Stage Turbine Blade Inspection

- Do the inspection of the 6th Stage Blades
 - (1) Attach the DO-NOT-OPERATE tags to the ENG START switch which is located on the overhead panel P5.
 - Do a visual check of the 6th-stage turbine blades for foreign object damage. Compare the damage with the limits which are given in Fig. 601.
- Do the 6th Stage Turbine Vane Inspection
 - (1) Do a visually check for the trailing edges of the turbine vane. Also do a visual check of the shrouds, and airfoils for foreign object damage. Compare this damage with the limits which are given in Fig. 602.

Only one airfoil side, shroud, and trailing edge is visible NOTE: at one time. If damage can be seen on the visible areas of the vane, a complete inspection of vane should be done. This should be done with a borescope, mirror or other tools so that the vane leading edge and remainder of airfoil surfaces can be observed.

EFFECTIVITY CHECK/INSP 6TH STAGE TURBINE VANES AND BLADES N72-53-01-6A 72-414-01-1 PAGE 1 OF 4 FEB 10/92

72-414-01-1

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767
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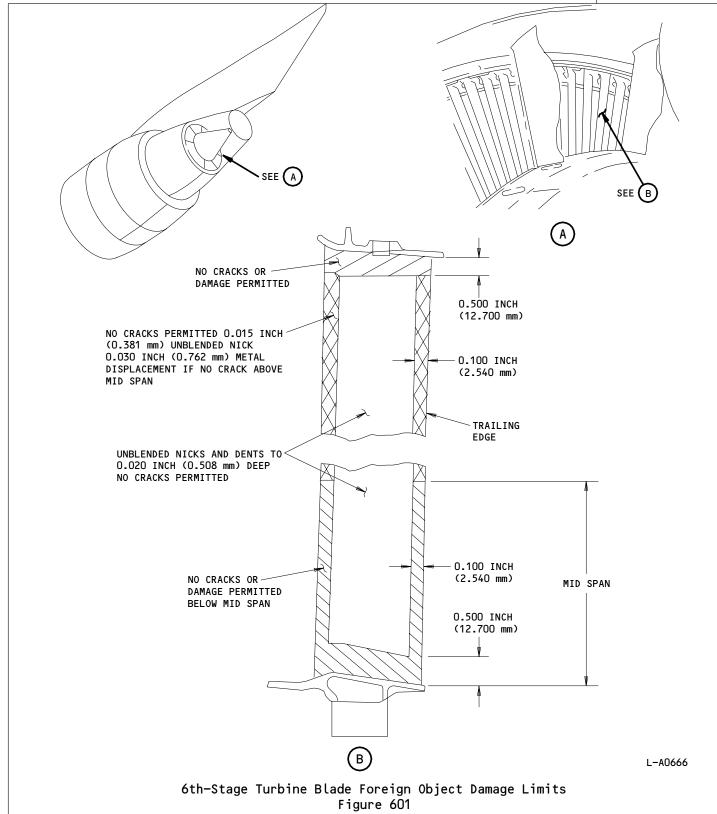
MECH	INSP										
			(2)	Damassa Aba DO NOT O		4	the ENG	CTART		41.	_
			(2)	Remove the DO-NOT-OF overhead panel P5.	PERAIE tag	Trom	the ENG	START	SWITCH	on the	9
EFF	ECTI	VITY -			CHECK/INSF	o 4	STH STAG	F TIIRRI	INF VANI	T AND	BI ADES
					N72-53-01-						MAY 10/90

72-414-01-1

AIRLINE CARD NO.

SAS





CHECK/INSP

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N72-53-01-6A

6TH STAGE TURBINE VANES AND BLADES

PAGE 3 OF 4 AUG 10/91

72-414-01-1

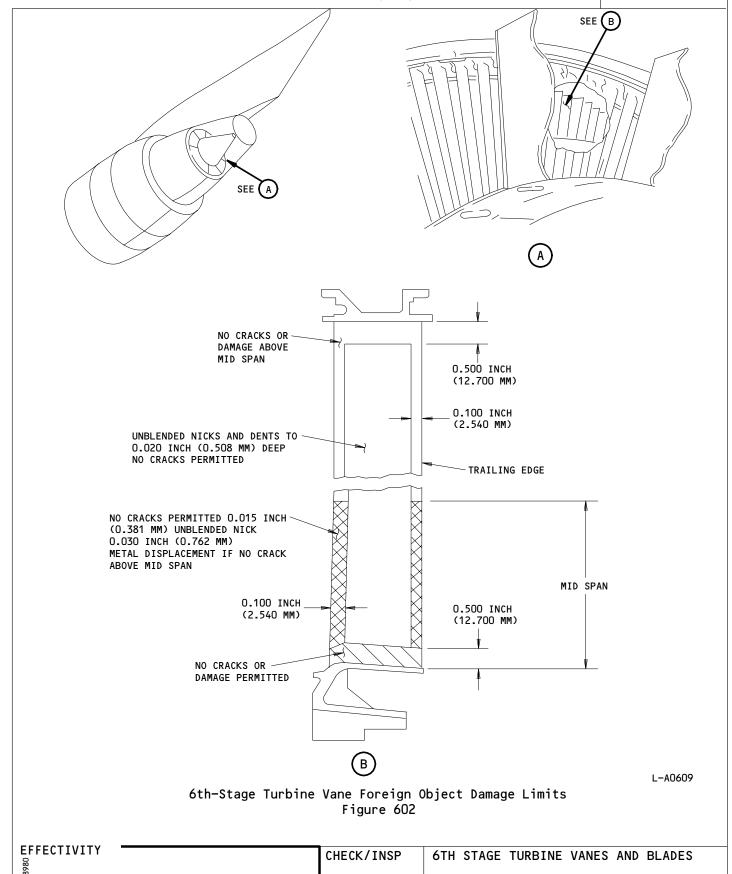
EFFECTIVITY

72-414-01-1

AIRLINE CARD NO.

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BOEING 767 TASK CARD



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PAGE 4 OF 4 NOV 10/88

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CVTII	WORK	ΔRFΔ	DELATED TACK



BOEING CARD NO. 72-414-01-2

AIRLINE CARD NO.

TASK CARD

ENGINE

MPD

AIRPLANE

PHASE

							REV	REVISION
ENGIN	ENGINE	2		00250 CYC		10101	006	FEB 10/92
TASI	K		TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE	AP	PLICABILITY

INTERVAL

ACCESS PANELS

CHECK/INSP 6TH STAGE TURBINE VANES AND BLADES ALL 4000

421

ZONES

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 SIXTH STAGE TURBINE VANES AND BLADES FOR CONDITION.

N72-53-01-6A

1. General

A. This procedure contains information for the visual inspection of the 6th-stage turbine blades and vanes. To do the inspection, look forward through the turbine exhaust area.

2. Do the 6th-Stage Turbine Blade Inspection

- A. Do the inspection of the 6th Stage Blades
 - (1) Attach the DO-NOT-OPERATE tags to the ENG START switch which is located on the overhead panel P5.
 - (2) Do a visual check of the 6th-stage turbine blades for foreign object damage. Compare the damage with the limits which are given in Fig. 601.
- B. Do the 6th Stage Turbine Vane Inspection
 - (1) Do a visually check for the trailing edges of the turbine vane. Also do a visual check of the shrouds, and airfoils for foreign object damage. Compare this damage with the limits which are given in Fig. 602.

NOTE: Only one airfoil side, shroud, and trailing edge is visible at one time. If damage can be seen on the visible areas of the vane, a complete inspection of vane should be done. This should be done with a borescope, mirror or other tools so that the vane leading edge and remainder of airfoil surfaces can be observed.

CHECK/INSP 6TH STAGE TURBINE VANES AND BLADES

N72-53-01-6A 72-414-01-2 PAGE 1 OF 4 FEB 10/92

72-414-01-2

AIRLINE CARD NO.

SAS FOEING
767
TASK CARD

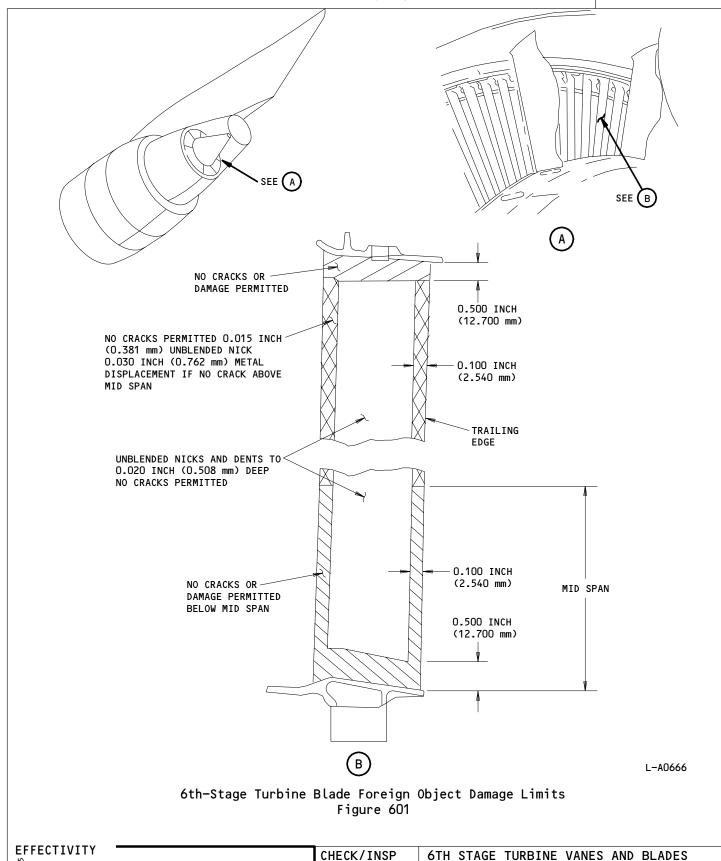
MECH	INSP										
			(2)	Remove the DO-NOT-O	PERATE tag	from	the ENG	START	switch	on the	<u> </u>
			(2)	overhead panel P5.	renate tag	TT OIII	CHE LING	SIAKI	SWILCH	OII CIR	=
EFF	ECTI	VITY -			CHECK/INSF	9 6	TH STAGE	TURBI	NE VANE	S AND	BLADES
					N72-53-01-	-6A 7	2-414-01	I-2 P	AGE 2	OF 4	MAY 10/90

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AIRLINE CARD NO.

SAS

767 TASK CARD



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PAGE 3 OF 4 AUG 10/91

72-414-01-2

AIRLINE CARD NO.

SAS FOR TASK CARD

SEE (B) SEE (A NO CRACKS OR DAMAGE ABOVE MID SPAN 0.500 INCH (12.700 MM) 0.100 INCH (2.540 MM) UNBLENDED NICKS AND DENTS TO ~ 0.020 INCH (0.508 MM) DEEP NO CRACKS PERMITTED TRAILING EDGE NO CRACKS PERMITTED 0.015 INCH-(0.381 MM) UNBLENDED NICK 0.030 INCH (0.762 MM) METAL DISPLACEMENT IF NO CRACK ABOVE MID SPAN MID SPAN 0.100 INCH 0.500 INCH (2.540 MM) (12.700 MM) NO CRACKS OR -DAMAGE PERMITTED L-A0609 6th-Stage Turbine Vane Foreign Object Damage Limits Figure 602

CHECK/INSP

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N72-53-01-6A

6TH STAGE TURBINE VANES AND BLADES

PAGE 4 OF 4 NOV 10/88

72-414-01-2

EFFECTIVITY

STA	ATION]							BOI	EING CARD NO.
TAI	L NO.					aei.	V/2		72-4	15
			S	AS		DE			AIR	LINE CARD NO.
	PATE		0,		Т	ASK CAR	D			
SKILL	WORK AR	EA	RELA	TED TASK		INTERVAL	-	PHASE	MPD REV	TASK CARD REVISION
SHOPS					LIFE	LMT	NOTE	99XXX		AUG 10/88
REPLA		IP T	URBINE	ROTATIN	NG COMPONEN	ITS	STRUCTURAL ILLU	STRATION REFERENCE	AIRPLAI	PPLICABILITY NE ENGINE
	ZONES						ACCESS PANELS		ALL	4000
MECH INSP	DISCAF ROTATI	NG AI	RSEALS.	T MANUF <i>a</i>		IFE LIMIT	, SHAFT AND	IE		MPD ITEM NUMBER

EFFECTIVITY

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TAI	L NO.			(T) B	OEII	VG			18-01-1
1	ATE		SI	AS E		767			AIR	LINE CARD NO.
					Т	ASK CAR	D			
SKILL	WORK AR	ĒA	RELA	TED TASK		INTERVA	-	PHASE	MPD REV	TASK CARD REVISION
ENGIN		1	W-06-		10	;		11212	006	MAY 10/89
CHECK	K/INSP	ENGI	NE 1 TU	JRBINE EX	HAUST CAS	SE RAILS	STRUCTURAL ILLUSTRATION	REFERENCE	AIRPLAN	
	ZONES						ACCESS PANELS		ALL	. 4000
411				417AL 4	18AR					
MECH INSP										MPD ITEM NUMBER
MECH INSP					4					
				E ENGINE WARE FOR			CASE MOUNT RAILS JRITY.		N72-5	60-00-D
EFFECT	IVITY '				СНЕ	CK/INSP	ENGINE 1 TURBI	NE EXHAL	IST CA	SE RAILS

STA	ATION									BOE	ING CARD NO.
TAI	IL NO.				S BI	DEIN	VG			72-4	18-01-2
			SA	s &		767				AIRI	LINE CARD NO.
	DATE				TA	SK CARD)				
SKILL	WORK AR	EA	RELATED	TASK		INTERVAL			PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE	2	W-06-14	5-01	1c				11212	006	MAY 10/89
TAS	SK			TITLE			STRUCTURAL ILLUST	TRATION RE	FERENCE	AF AIRPLAN	PLICABILITY E ENGINE
CHECK	(/INSP	ENG	INE 2 TUR	BINE EXH	AUST CASE	RAILS				ALL	4000
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421			4	27AL 42	8AR						
MECH INSP	,									ı	MPD ITEM NUMBER
							CASE MOUNT			N72-5	0-00-D
	RAILS	AND I	MOUNTING	HARDWARE	FOR COND	OITION AN	D SECURITY.				
'	•										
EFFECT	IVITY '				CUE	N/ / TNCD	ENCINE 2 T	TUDD TN	F FVIIAII	CT CA	CE DATI C

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415AL 416AR 417AL 418AR

BOEING CARD NO. 72-420-01-1

AIRLINE CARD NO.

4000

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SKILL	WORK ARE	ĒΑ	RELATED TASK		INTERVAL		PHASE	MPD	TASK CARD
								REV	REVISION
ENGIN	ENGINE	1	W-06-145-01	10			11212	006	AUG 22/09
LIVOTIV	LINGTINE	•	W 00 170 01	10			11212	000	NOG ELIO
TAS	K		TITLE			STRUCTURAL ILLUSTRATION RE	FERENCE	AF	PPLICABILITY
								AIRPLAN	IE ENGINE
CHECK/INSP ENGINE 1 MAIN GEARBOX HO			X HOUSING						

ZONES ACCESS PANELS

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 MAIN GEARBOX HOUSING FOR CONDITION AND SECURITY.

N72-61-01-6A

- 1. Main Gearbox Inspection/Check
 - A. Consumable Materials
 - (1) D00137 Oil Engine (PWA521B) (AMM 20-30-04)
 - (2) B00448 Trichloroethane Commercially Available
 - В. References
 - (1) AMM 12-13-01/301, Engine Oil System Servicing
 - (2) AMM 71-11-04/201, Fan Cowl Panels
 - (3) AMM 71-11-06/201, Core Cowl Panels
 - (4) AMM 78-31-00/201, Thrust Reverser System
 - (5) AMM 79-21-10/401, Magnetic Chip Detectors
 - Access
 - (1) Location Zones

410 Left Power Plant Nacelle

420 Right Power Plant Nacelle

- D. Prepare for the main gearbox inspection.
 - (1) Open the fan cowl panels (AMM 71-11-04/201).

EFFECTIVITY CHECK/INSP ENGINE 1 MAIN GEARBOX HOUSING N72-61-01-6A 72-420-01-1 PAGE 1 OF 6 AUG 22/00

AIRLINE CARD NO.

72-420-01-1

SAS BOEING TASK CARD

MECH INSP

DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE WARNING: OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).
- (3) Open the core cowl panels (AMM 71-11-06/201).

OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST <u>WARNING</u>: REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Open the thrust reversers (AMM 78-31-00/201).
- Do the main gearbox inspection.
 - (1) Open the ENG START switch on the P5 overhead panel and attach the DO-NOT-OPERATE tag.

WARNING: ALLOW A MINIMUM OF FIVE MINUTES AFTER ENGINE IS SHUTDOWN TO ALLOW THE OIL TANK PRESSURE TO BLEED OFF BEFORE THE OIL TANK CAP IS OPENED. HOT OIL WHICH FLOWS FROM THE TANK CAN CAUSE INJURY TO YOU.

WARNING: DO NOT KEEP THE LUBRICATING OIL ON YOUR SKIN FOR A LONG TIME. IF YOU DO NOT CLEAN THE OIL OFF, INJURY TO YOU CAN OCCUR.

(2) Do a check of the main gearbox, oil pump, and oil tank for any signs of oil spills.

CAUTION: WHEN THE DRAIN PLUGS ARE REMOVED, HOLD THE BUSHINGS AT THE WRENCHING FLATS TO PREVENT THE BUSHINGS FROM BECOMING LOOSE.

(a) If any signs of oil spills are found around the drain plugs, do the following steps:

EFFECTIVITY

CHECK/INSP

ENGINE 1 MAIN GEARBOX HOUSING

N72-61-01-6A 72-420-01-1 PAGE 2 OF 6 AUG 22/09

72-420-01-1

TASK CARD

AIRLINE CARD NO.

MECH	INSP	-							
				1) Remo	ve the	plugs and dis	card the	packings.	
				2) Perm	it the	oil to fully	drain int	o an applical	ole container.
				CAUTION:	PREV	SURE TO INSTA ENT LOSS OF EN CAN RESULT IN	GINE OIL	DURING ENGINE	OPERATION.
						the drain plug ubricated with			using new
				inch plug	es (12	e lower drain .2-13.6 newton ighten to 150- ers).	-meters).	Install the	e upper drain
				5) Fill	the e	ngine oil syst	em (AMM 1	2-13-01/301)	
			(b)			in gearbox, th the magnetic			
						pe of the MCD different from			
				hous	ing, r	k comes from beplace the pac , the packing	king on t	he probe and,	, if
				port	, repl	k comes from b ace the packin -10/401).			g and the
		(3	from		stem,	k cap for leak replace the pa			which comes
		(4	crac	ks. If a	ny cra	ain gearbox, o cks are found, s to service.			•
		(5		check of	the m	ain gearbox an	d oil pum	p for evidend	ce of
FFF	ECTI	VITY —							
	,1	****				CHECK/INSP	ENGINE 1	MAIN GEARBO	(HOUSING

MECH INSP

N72-61-01-6A 72-420-01-1 PAGE 3 OF 6 AUG 22/09

72-420-01-1

AIRLINE CARD NO.

		TASK CARD			
MECH	INSP				
		CAUTION: CORROSION MAY BE CAUSED BY HYDRAULIC FLUID WHICH HAS SPILLED ON A HOT ALUMINUM GEARBOX AND HAS DECOMPOSED. MAKE ALL SPILLS CLEAN WITH CLOTH SOAKED WITH TRICHLOROETHANE.			
		(a) A part may continue in service if the guidelines that follow are met:			
		1) The corrosion of an area must be equal to but no more than 0.050 inch (1.270 mm) in depth	1		
		2) The corrosion must not be more than 1.00 sq inch in area			
		3) The separation between any areas of corrosion must be at least 2.00 inches.			
		(b) Corrosion that is more than the limits above is not satisfactory and the part may not continue in service.			
		F. Put the Airplane Back To Its Usual Condition			
		WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUS REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.	ST		
		(1) Close the thrust reversers (AMM 78-31-00/201).			
		(2) Close the core cowl panels (AMM 71-11-06/201).			
		(3) Close the fan cowl panels (AMM 71-11-04/201).			
		(4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).			

EFFECTIVITY	CHECK/INSP	ENGINE 1 MAIN GEARBOX HOUSING

P5 overhead panel.

N72-61-01-6A 72-420-01-1

(5) Remove the DO-NOT-OPERATE tag and close the ENG START switch on the

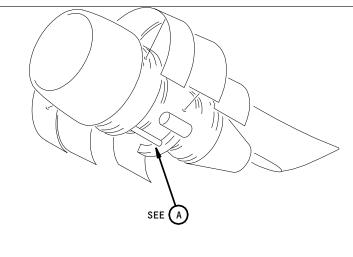
PAGE 4 OF 6 APR 22/04

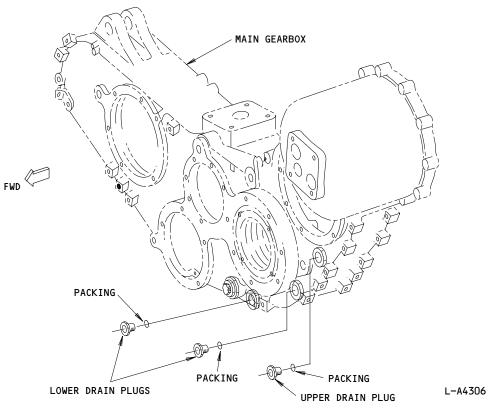
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AIRLINE CARD NO.

SAS

767 TASK CARD







Main Gearbox Drain Plug Locations Figure 601

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CHECK/INSP

ENGINE 1 MAIN GEARBOX HOUSING

N72-61-01-6A

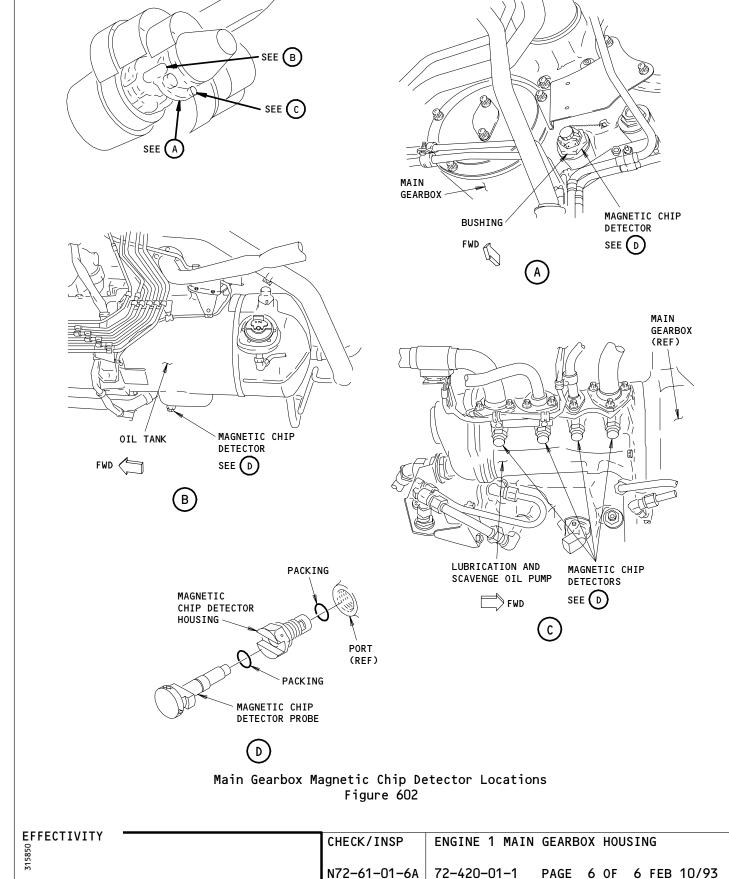
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72-420-01-1

AIRLINE CARD NO.

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767 TASK CARD



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BOEING CARD NO. 72-420-01-2

AIRLINE CARD NO.

TASK CARD

4000

MPD

ALL

SKILL WORK AREA RELATED TASK INTERVAL PHASE REVISION REV 006 AUG 22/09 ENGIN | ENGINE 2 W-06-145-011C 11212 STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY
AIRPLANE ENGINE CHECK/INSP ENGINE 2 MAIN GEARBOX HOUSING

ZONES ACCESS PANELS

MECH INSP

421

VISUALLY CHECK THE ENGINE 2 MAIN GEARBOX HOUSING FOR CONDITION AND SECURITY.

N72-61-01-6A

MPD ITEM NUMBER

- 1. Main Gearbox Inspection/Check
 - A. Consumable Materials
 - (1) D00137 Oil Engine (PWA521B) (AMM 20-30-04)
 - (2) B00448 Trichloroethane Commercially Available
 - В. References
 - (1) AMM 12-13-01/301, Engine Oil System Servicing
 - (2) AMM 71-11-04/201, Fan Cowl Panels
 - (3) AMM 71-11-06/201, Core Cowl Panels
 - (4) AMM 78-31-00/201, Thrust Reverser System
 - (5) AMM 79-21-10/401, Magnetic Chip Detectors
 - Access
 - (1) Location Zones

410 Left Power Plant Nacelle

420 Right Power Plant Nacelle

- D. Prepare for the main gearbox inspection.
 - (1) Open the fan cowl panels (AMM 71-11-04/201).

EFFECTIVITY

CHECK/INSP

ENGINE 2 MAIN GEARBOX HOUSING

N72-61-01-6A

72-420-01-2 PAGE 1 OF 6 AUG 22/00

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72-420-01-2

AIRLINE CARD NO.

SAS BOEING TASK CARD

MECH INSP

DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE WARNING: OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).
- (3) Open the core cowl panels (AMM 71-11-06/201).

OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST <u>WARNING:</u> REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Open the thrust reversers (AMM 78-31-00/201).
- Do the main gearbox inspection.
 - (1) Open the ENG START switch on the P5 overhead panel and attach the DO-NOT-OPERATE tag.

WARNING: ALLOW A MINIMUM OF FIVE MINUTES AFTER ENGINE IS SHUTDOWN TO ALLOW THE OIL TANK PRESSURE TO BLEED OFF BEFORE THE OIL TANK CAP IS OPENED. HOT OIL WHICH FLOWS FROM THE TANK CAN CAUSE INJURY TO YOU.

WARNING: DO NOT KEEP THE LUBRICATING OIL ON YOUR SKIN FOR A LONG TIME. IF YOU DO NOT CLEAN THE OIL OFF, INJURY TO YOU CAN OCCUR.

(2) Do a check of the main gearbox, oil pump, and oil tank for any signs of oil spills.

CAUTION: WHEN THE DRAIN PLUGS ARE REMOVED, HOLD THE BUSHINGS AT THE WRENCHING FLATS TO PREVENT THE BUSHINGS FROM BECOMING LOOSE.

(a) If any signs of oil spills are found around the drain plugs, do the following steps:

EFFECTIVITY

CHECK/INSP

ENGINE 2 MAIN GEARBOX HOUSING

N72-61-01-6A 72-420-01-2 PAGE 2 OF 6 AUG 22/09

72-420-01-2

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP 1) Remove the plugs and discard the packings. 2) Permit the oil to fully drain into an applicable container. CAUTION: MAKE SURE TO INSTALL PACKINGS ON ALL DRAIN PLUGS TO PREVENT LOSS OF ENGINE OIL DURING ENGINE OPERATION. THIS CAN RESULT IN POSSIBLE ENGINE FAILURE. 3) Lubricate the drain plug threads and install using new packings lubricated with engine oil. Install the lower drain plugs and tighten to 110-120 pound inches (12.2-13.6 newton-meters). Install the upper drain plug and tighten to 150-170 pound inches (16.9-19.2 newton-meters). Fill the engine oil system (AMM 12-13-01/301). Examine the main gearbox, the oil pump, and the oil tank for oil leaks from the magnetic chip detectors (MCD) (Fig. 602). The shape of the MCD probe and the quantity of packings can be different from what is shown in the Fig. 602. If the leak comes from between the MCD probe and the MCD housing, replace the packing on the probe and, if applicable, the packing on the housing (AMM 79-21-10/401). If the leak comes from between the MCD housing and the port, replace the packing on the housing (AMM 79-21-10/401). (3) Examine the oil tank cap for leaks. If you find a leak which comes from the cap stem, replace the packing in the cap (AMM 79-11-03/201). (4) Do a check of the main gearbox, oil pump and oil tank for any cracks. If any cracks are found, replace the cracked parts before the airplane returns to service. (5) Do a check of the main gearbox and oil pump for evidence of corrosion.

EFFECTIVITY

ENGINE 2 MAIN GEARBOX HOUSING

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CHECK/INSP

72-420-01-2

AIRLINE CARD NO.

			3	A3	TASK CARD	
MECH	INSP					
			CAUT	ION:	CORROSION MAY BE CAUSED BY HYDRAULIC FLUID WHI SPILLED ON A HOT ALUMINUM GEARBOX AND HAS DECO MAKE ALL SPILLS CLEAN WITH CLOTH SOAKED WITH TRICHLOROETHANE.	
			(a)	A par are m	et may continue in service if the guidelines the	nat follow
					he corrosion of an area must be equal to but r 0.050 inch (1.270 mm) in depth	no more than
				2) 1	he corrosion must not be more than 1.00 sq inc	ch in area
					he separation between any areas of corrosion meast 2.00 inches.	nust be at
			(b)		esion that is more than the limits above is not sfactory and the part may not continue in servi	
		F. i	Put the Ai	irplar	ne Back To Its Usual Condition	
		<u> 1</u>	WARNING:	REVER	THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOS RSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, IN ONS OR DAMAGE TO EQUIPMENT CAN OCCUR.	
		((1) Close	e the	thrust reversers (AMM 78-31-00/201).	
		((2) Close	e the	core cowl panels (AMM 71-11-06/201).	
			(3) Close	e the	fan cowl panels (AMM 71-11-04/201).	
		•			ivation procedure for the thrust reversers -00/201).	
		,			e DO-NOT-OPERATE tag and close the ENG START swad panel.	vitch on the

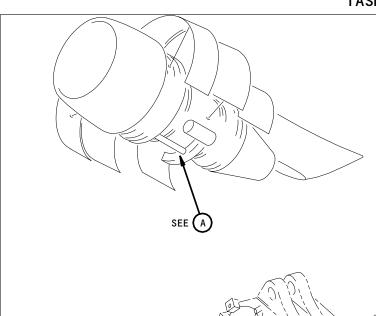
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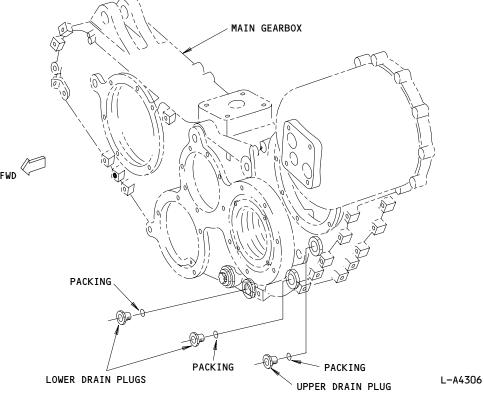
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AIRLINE CARD NO.

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767 TASK CARD







Main Gearbox Drain Plug Locations
Figure 601

EFFECTIVITY

CHECK/INSP

ENGINE 2 MAIN GEARBOX HOUSING

N72-61-01-6A

72-420-01-2 PAGE 5 OF 6 FEB 10/90

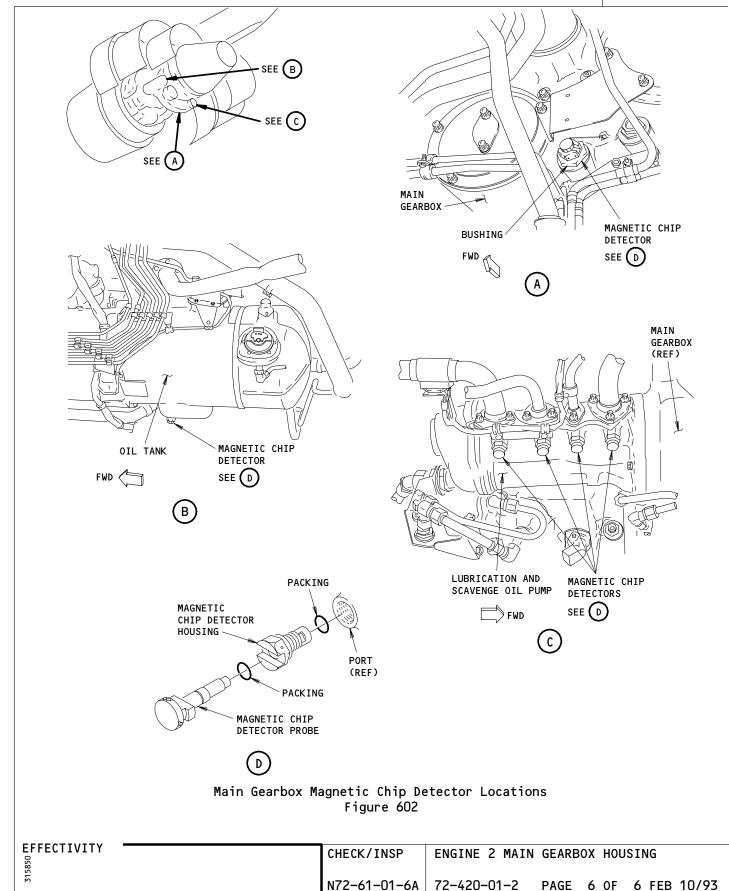
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AIRLINE CARD NO.

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FOEING 767 TASK CARD



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BOEING CARD NO. 72-422-51-1

AIRLINE CARD NO.

						TASK	CARD					
SKILL	WORK ARI	ΕA	REI	LATED TASK			INTERVAL		PHASE	MPD REV	1	SK CARD EVISION
ENGIN	ENGINE	1	W-06-	-145-01		1C			11212	007	DEC	22/06
TASK			TI.	TLE			STRUCTURAL ILLUSTRATION RE	EFERENCE	AIRPLAN	PPLICABI	LITY ENGINE	
CHECK	/INSP	ENGI	NE 1 A	ANGLE GE	ARBOX H	OUSING				ATRI EAR		LITOTIVE
										ALL		4000
	ZONES							ACCESS PANELS				
411				415AL	416AR	417AL	418AR	NOTE				

MECH INSP

VISUALLY CHECK THE ENGINE 1 ANGLE GEARBOX HOUSING FOR CONDITION AND SECURITY.

N72-62-01-6A

MPD ITEM NUMBER

ACCESS NOTE: FAN EXIT LINER SEGMENT MUST BE REMOVED TO PERFORM THIS CHECK.

- A. References
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 72-34-03/401, Fan Exit Liner Segment
 - (4) AMM 72-62-01/401, Angle Gearbox
 - (5) AMM 78-31-00/201, Thrust Reverser System
- B. Access
 - (1) Location Zones

411 Left Engine

421 Right Engine

- C. Do the Inspection of the Angle Gearbox
 - (1) Open the fan cowl panels (AMM 71-11-04/201).
 - (2) Open the core cowl panels (AMM 71-11-06/201).

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS

OR DAMAGE TO EQUIPMENT.

EFFECTIVITY

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CHECK/INSP

ENGINE 1 ANGLE GEARBOX HOUSING

N72-62-01-6A 72-422-51-1

72-422-51-1 PAGE 1 OF 4 AUG 22/99

72-422-51-1

AIRLINE CARD NO.

SAS FOR TASK CARD

MECH INSP

(3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

- (4) Remove the No. 4 fan exit lining segment (AMM 72-34-03/401).
- (5) Examine the angle gearbox for cracks, oil leaks and corrosion to make sure that the damage is less than the limits given in the damage limit table.

DAMAGE LIMIT TABLE							
DAMAGE TYPE	AMOUNT OF DAMAGE PERMITTED inches (mm)						
Cracks	No Damage Permitted						
Oil Leaks	No Damage Permitted						
Corrosion	Max. Depth - 0.05 (1.270) Max. Area - 1.00 sq in. (645 sq mm) Min. Separation - 2.00 (50.80)						

- (6) Visually inspect for pin migration beyond the support bracket on both sides of the angle gearbox (Fig./601).
 - (a) Pin migration that is greater than 0.125 inch (3.175 mm) is to be inspected every 25 cycles.
 - (b) Maximum pin migration is 0.250 inch (6.350 mm). Remove angle gearbox from service if migration exceeds maximum.
- (7) Install the No. 4 fan exit lining segment (AMM 72-34-03/401).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT COULD OCCUR.

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SAS BOEING TASK CARD

AIRLINE CARD NO.

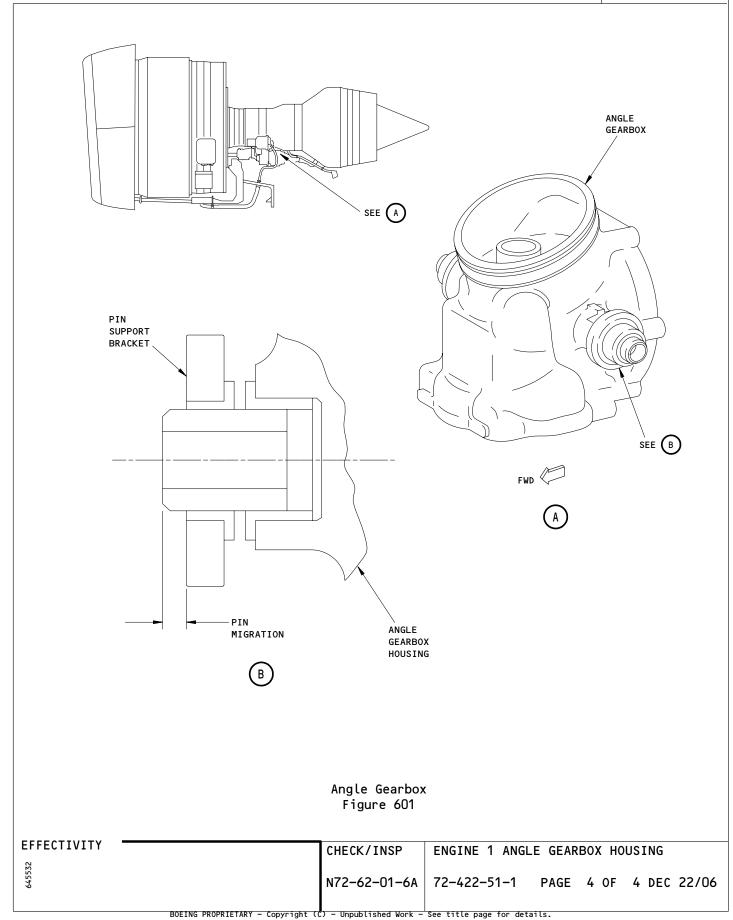
								IASIN	CARL	•					
MECH	INSP														
			(8)	Close	the t	hrust	reve	rsers	(AMM	78-31-C	0/201).				
			(9)	Close	the c	ore co	owl p	anels	(AMM	71-11-0	6/201).				
			(10)	Do the	e acti	vatio	n pro				ust rev	erser			
				(AMM 7	78–31–	00/20′	1).								
FF	ECTI	VITY -						HECK/	INSP	ENGIN	IE 1 ANGI	LE GEAR	BOX HO	USING	
											2-51-1				22/04
							- 1"	02-	UI UA	16-46	_ JI - I	IAGL	5 01	T DLU	22,00

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AIRLINE CARD NO.

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SKILL

WORK AREA



BOEING CARD NO. 72-422-51-2

AIRLINE CARD NO.

N72-62-01-6A

PHASE

TASK CARD

REV REVISION W-06-145-01 007 DEC 22/06 ENGIN | ENGINE 2 1C 11212 APPLICABILITY
ANF ENGINE STRUCTURAL ILLUSTRATION REFERENCE

INTERVAL

AIRPLANE CHECK/INSP ENGINE 2 ANGLE GEARBOX HOUSING ALL 4000

ACCESS PANELS ZONES

421 425AL 426AR 427AL 428AR NOTE

RELATED TASK

MPD ITEM NUMBER MECH INSP

VISUALLY CHECK THE ENGINE 2 ANGLE GEARBOX HOUSING FOR CONDITION AND SECURITY.

ACCESS NOTE: FAN EXIT LINER SEGMENT MUST BE REMOVED TO PERFORM THIS CHECK.

- References Α.
 - (1) AMM 71-11-04/201, Fan Cowl Panels
 - (2) AMM 71-11-06/201, Core Cowl Panels
 - (3) AMM 72-34-03/401, Fan Exit Liner Segment
 - (4) AMM 72-62-01/401, Angle Gearbox
 - (5) AMM 78-31-00/201, Thrust Reverser System
- Access
 - (1) Location Zones

411 Left Engine

421 Right Engine

- Do the Inspection of the Angle Gearbox
 - (1) Open the fan cowl panels (AMM 71-11-04/201).
 - (2) Open the core cowl panels (AMM 71-11-06/201).

DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO **WARNING:** PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL

OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS

OR DAMAGE TO EQUIPMENT.

EFFECTIVITY CHECK/INSP ENGINE 2 ANGLE GEARBOX HOUSING N72-62-01-6A 72-422-51-2 PAGE 1 OF 4 AUG 22/99

72-422-51-2

FOEING 767 TASK CARD

AIRLINE CARD NO.

MECH	INSP

(3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

- (4) Remove the No. 4 fan exit lining segment (AMM 72-34-03/401).
- (5) Examine the angle gearbox for cracks, oil leaks and corrosion to make sure that the damage is less than the limits given in the damage limit table.

DAMAGE LIMIT TABLE							
DAMAGE TYPE	AMOUNT OF DAMAGE PERMITTED inches (mm)						
Cracks	No Damage Permitted						
Oil Leaks	No Damage Permitted						
Corrosion	Max. Depth - 0.05 (1.270) Max. Area - 1.00 sq in. (645 sq mm) Min. Separation - 2.00 (50.80)						

- (6) Visually inspect for pin migration beyond the support bracket on both sides of the angle gearbox (Fig./601).
 - (a) Pin migration that is greater than 0.125 inch (3.175 mm) is to be inspected every 25 cycles.
 - (b) Maximum pin migration is 0.250 inch (6.350 mm). Remove angle gearbox from service if migration exceeds maximum.
- (7) Install the No. 4 fan exit lining segment (AMM 72-34-03/401).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT COULD OCCUR.

EFFECTIVITY	CHECK/INSP	ENGINE 2 ANG	LE GEAR	вох но	USING	
	N72-62-01-6A	72-422-51-2	PAGE	2 OF	4 DEC	22/06

72-422-51-2

AIRLINE CARD NO.

SAS BOEING TASK CARD

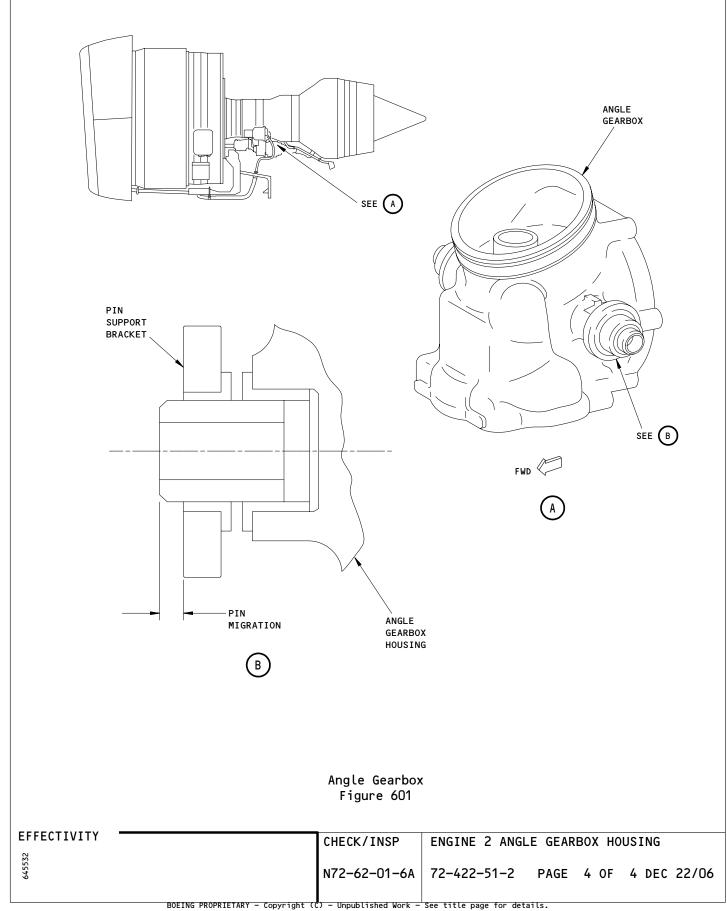
MECH	INSP		
		(8)	Close the thrust reversers (AMM 78-31-00/201).
			Close the core cowl panels (AMM 71-11-06/201).
		(10)	Do the activation procedure for the thrust reverser (AMM 78-31-00/201).
EFF	ECTI	VITY	CHECK/INSP ENGINE 2 ANGLE GEARBOX HOUSING
			N72-62-01-6A 72-422-51-2 PAGE 3 OF 4 DEC 22/06

72-422-51-2

AIRLINE CARD NO.

SAS





STAT	ION			,					ING CARD NO.
TAIL	NO.		(7) B	OEII	VG		72-4	24
DA	TE		SAS Y		767			AIR	LINE CARD NO.
, DA				Т	ASK CARI	D			
SKILL	WORK AR	EA F	RELATED TASK		INTERVAL	-	PHASE	MPD REV	TASK CARD REVISION
SHOPS				LIFE	LMT	NOTE	99XXX	006	AUG 22/99
TASK			TITLE			STRUCTURAL ILLUSTRATION	REFERENCE	AIRPLAN	PLICABILITY E ENGINE
REPLAC	CE	TURBINE S	SHAFT COUPL	.ING				ALL	4000
	ZONES					ACCESS PANELS		ALL	4000
411 4	421								
MECH INSP									MPD ITEM NUMBER
	DISCAR	D THE TURE	BINE SHAFT	COUPLING.				N72-0	0-00-c
			AT MANUFAC	TURER'S L	IFE LIMIT	(SEE ENGINE		0	
			MANUAL, CH	IAPTER 5).	1				
EFFECT:	[VITY '			DEE	PLACE	TURRINE SHAFT	COLIDI TNC		

S	TATION									BOE	ING CARD NO.
T	AIL NO.			(X	BOEI	7.2			72-4	25-01-1
	DATE		SI	AS &		767				AIR	LINE CARD NO.
	DATE					TASK CA	RD				
SKILL	WORK	AREA	RELA	TED TASK		INTER	VAL		PHASE	MPD REV	TASK CARD REVISION
ENGIN		E 1				1000 HRS			10202	005	DEC 22/07
	K/INSP	ENG	INE 1 FF	TITLE RONT FAN				STRUCTURAL ILLUSTRATION R	EFERENCE	AIRPLAN	
	ZONES							ACCESS PANELS		ALL	4000
411				413AL 4	14AR						
MECH INS	SP									1	MPD ITEM NUMBER
	VISU	ALLY C	HECK THE	E ENGINE	1 FRO	NT FAN CASE	FO	R CONDITION.		N72-3	3-01-A
	TT1/7TV										
LFFEC	TIVITY					CHECK/INSP		ENGINE 1 FRONT	FAN CAS	SE	

N72-33-01-A

72-425-01-1 PAGE 1 OF 1 DEC 22/07

S	TATION									BOE	ING CARD NO.
T.	AIL NO.					0	BOEII	VG		72-4	25-01-2
	DATE			S	SAS	KX.	767			AIR	LINE CARD NO.
	DATE						TASK CAR	D			
SKILL		WORK ARE	EA	RE	LATED TASK		INTERVA	-	PHASE	MPD REV	TASK CARD REVISION
ENGIN	I EN	NGINE	2			0	1000 HRS		10202	005	DEC 22/07
CHEC	K/IN	NSP	ENG:	INE 2	FRONT FAI			STRUCTURAL ILLUSTRATIO	N REFERENCE	AIRPLAN	
	Z	ONES						ACCESS PANELS		ALL	4000
421					423AL	424AR					
MECH IN:	SP										MPD ITEM NUMBER
											3-01-A
EFFEC	TIVI	TY •					CHECK/INSP	ENGINE 2 FRON	T FAN CAS	SF.	

N72-33-01-A

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72-425-01-2 PAGE 1 OF 1 DEC 22/07

STATION	
TAIL NO.	
DATE	-

WORK AREA

SKILL



BOEING CARD NO. 72-426-01-1

AIRLINE CARD NO.

TASK CARD

MPD

PHASE

ENGIN ENGINE 1 01000 HRS 10202 005 DEC 22/07

TASK TITLE STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

CHECK/INSP ENGINE 1 FAN EXIT FAIRING ALL 4000

ZONES ACCESS PANELS

411 415AL 416AR

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN EXIT FAIRING FOR CONDITION.

N72-31-03-6A

FAN EXIT FAIRING - INSPECTION/CHECK

- General
 - A. This procedure gives a visual inspection of the fan exit fairing for nick, gouges, cracks, and delamination.
- Fan Exit Fairing Inspection/Check
 - A. References
 - (1) AMM 72-31-03/401, Fan Exit Fairing
 - B. Access
 - (1) Location Zones
 - 410 Left Power Plant Nacelle
 - 420 Right Power Plant Nacelle
 - C. Do an Inspection of the Fan Exit Fairing (Fig. 601)
 - (1) Attach a DO-NOT-CLOSE tag to the ENG START switch on the pilot's overhead panel, P5.
 - (2) Visually examine the fan exit fairing:

72-426-01-1

AIRLINE CARD NO.

TASK CARD

MECH INSP

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
Α	Nicks, Gouges, and Cracks and Cracks	Not more than 0.050 inch (1.270 mm) in depth, less than 0.50 inch (12.700 mm) in width, at least 2.00 inches (50.80 mm) apart from other nicks, gouges, or cracks, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
В	Nicks, and Gouges	Not more than 1.000 inch (25.400 mm) in diameter, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches (50.800 mm) apart from other nicks, or gouges, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
A and B	Delamination of the composite material Examine after each 50 hours of operation for increased dimensions.	Not more than 1.000 inch (25.400 mm) by 1.500 inch (38.100 mm) in area, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches apart from other delaminations, nicks, or gouges, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing before the 26 hour of operation (AMM 72-31-03/401).
		Not more than 2.50 inches (63.50 mm) by 2.00 inches (50.80 mm) in area.	Replace the Fan Exit Fairing immediately (AMM 72-31-03/401).

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN EXIT FAIRING

N72-31-03-6A 72-426-01-1 PAGE 2 OF 4 AUG 22/00

72-426-01-1

AIRLINE CARD NO.

TASK CARD

MECH INSP

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
A and B	Delamination, erosion, or loose areas of the Black Polyurethane Surface Layer	100 percent of the surface area NOTE: Fan exit fairing assemblies with a steel leading edge cap will not have the black polyurethane surface layer. Make sure this steel leading edge cap is	

(3) Remove the DO-NOT-OPERATE tag from the ENG START switch on the pilot's overhead panel, P5.

EFFECTIVITY

CHECK/INSP

ENGINE 1 FAN EXIT FAIRING

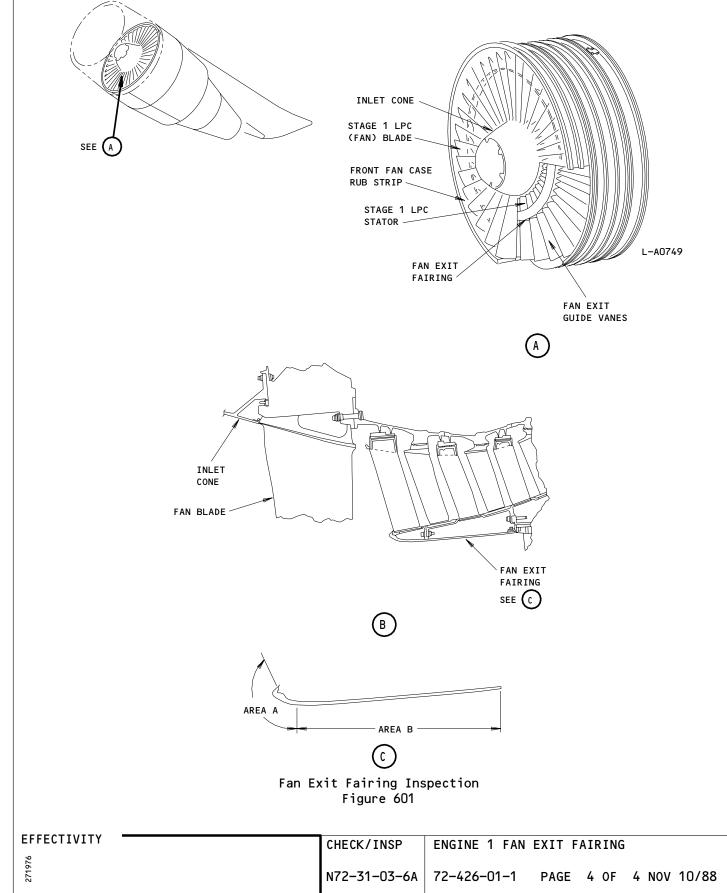
N72-31-03-6A 72-426-01-1 PAGE 3 OF 4 MAY 10/91

72-426-01-1

AIRLINE CARD NO.

SAS





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STATION	
TAIL NO.	
DATE	

WORK AREA

SKILL



BOEING CARD NO. 72-426-01-2

AIRLINE CARD NO.

TASK CARD

MPD

PHASE

ENGIN ENGINE 2 01000 HRS 10202 005 DEC 22/07

TASK TITLE STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

INTERVAL

CHECK/INSP ENGINE 2 FAN EXIT FAIRING
ALL 4000

ZONES ACCESS PANELS

421 425AL 426AR

RELATED TASK

MECH INSP MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FAN EXIT FAIRING FOR CONDITION.

N72-31-03-6A

FAN EXIT FAIRING - INSPECTION/CHECK

- General
 - A. This procedure gives a visual inspection of the fan exit fairing for nick, gouges, cracks, and delamination.
- Fan Exit Fairing Inspection/Check
 - A. References
 - (1) AMM 72-31-03/401, Fan Exit Fairing
 - B. Access
 - (1) Location Zones
 - 410 Left Power Plant Nacelle
 - 420 Right Power Plant Nacelle
 - C. Do an Inspection of the Fan Exit Fairing (Fig. 601)
 - (1) Attach a DO-NOT-CLOSE tag to the ENG START switch on the pilot's overhead panel, P5.
 - (2) Visually examine the fan exit fairing:

72-426-01-2

AIRLINE CARD NO.

SAS

Delamination

of the

composite

MECH INSP

767 TASK CARD

767

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
Α	Nicks, Gouges, and Cracks and Cracks	Not more than 0.050 inch (1.270 mm) in depth, less than 0.50 inch (12.700 mm) in width, at least 2.00 inches (50.80 mm) apart from other nicks, gouges, or cracks, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
В	Nicks, and Gouges	Not more than 1.000 inch (25.400 mm) in diameter, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches (50.800 mm) apart from other nicks, or gouges, and no more than three in a 45	Replace the Fan Exit Fairing (AMM 72-31-03/401).

degree arc.

A and B	material Examine after each 50 hours of operation for increased dimensions.	in area, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches apart from other delaminations, nicks, or gouges, and no more than three in a 45 degree arc.	(AMM 72-31-03/401).
		Not more than 2.50 inches (63.50 mm) by 2.00 inches (50.80 mm) in area.	Replace the Fan Exit Fairing immediately (AMM 72-31-03/401).

Not more than 1.000

inch (25.400 mm) by

1.500 inch (38.100 mm)

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN EXIT FAIRING

N72-31-03-6A

72-426-01-2 PAGE 2 OF 4 AUG 22/00

Replace the Fan Exit

hour of operation

Fairing before the 26th

72-426-01-2

AIRLINE CARD NO.

TASK CARD

MECH INSP

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
A and B	Delamination, erosion, or loose areas of the Black Polyurethane Surface Layer	100 percent of the surface area NOTE: Fan exit fairing assemblies with a steel leading edge cap will not have the black polyurethane surface layer. Make sure this steel leading edge cap is	

(3) Remove the DO-NOT-OPERATE tag from the ENG START switch on the pilot's overhead panel, P5.

EFFECTIVITY

CHECK/INSP

ENGINE 2 FAN EXIT FAIRING

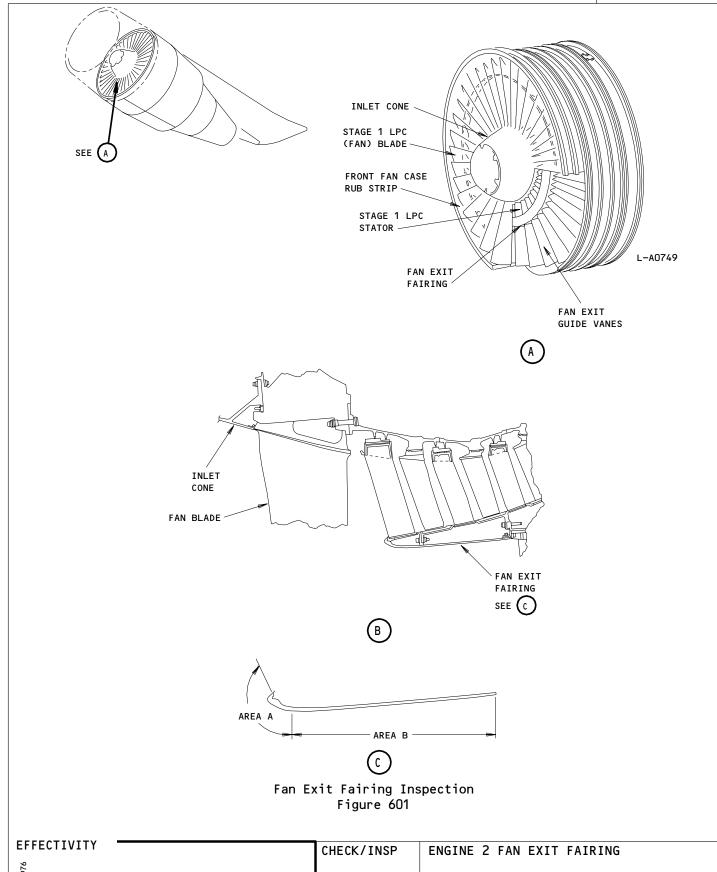
N72-31-03-6A 72-426-01-2 PAGE 3 OF 4 MAY 10/91

72-426-01-2

AIRLINE CARD NO.

SAS





N72-31-03-6A

72-426-01-2

PAGE 4 OF 4 NOV 10/88

TASK CARD SKILL WORK AREA RELATED TASK INTERVAL PHASE REV REV ENGIN ENGINE 1 W-06-145-01 1C 11212 006 MAY TASK TITLE CHECK/INSP ENGINE 1 FRONT MOUNT THRUST BRACKETS ACCESS PANELS 411 415AL 416AR	STA	ATION						BOE	ING CARD NO.
TASK CARD SKILL WORK AREA RELATED TASK INTERVAL PHASE REV REV REV REV REV REV REV REV REV RE	TAI	L NO.			X BOFIN			72-4	27-01-1
TASK CARD SKILL WORK AREA RELATED TASK INTERVAL PHASE REV REV REV ENGIN ENGINE 1 W-06-145-01 1C 11212 006 MAY TASK CHECK/INSP ENGINE 1 FRONT MOUNT THRUST BRACKETS ZONES 411 415AL 416AR WECH INSP VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR				SAS &				AIRI	INE CARD NO.
SKILL WORK AREA RELATED TASK INTERVAL PHASE REV REV REV REV REV REV REV REV REV RE		DATE) 			
ENGIN ENGINE 1 W-06-145-01 1C 11212 006 MAY TASK CHECK/INSP ENGINE 1 FRONT MOUNT THRUST BRACKETS ZONES 411 VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR	SKILL	WORK AR	EA	RELATED TASK			PHASE		TASK CARD
TASK CHECK/INSP ENGINE 1 FRONT MOUNT THRUST BRACKETS ZONES 411 415AL 416AR MECH INSP VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR STRUCTURAL ILLUSTRATION REFERENCE APPLICABIL AIRPLANE ALL ACCESS PANELS MPD ITEM N72-30-00-	ENGIN	ENGINE	1 W-0	N6-145-N1	10		11212		REVISION MAY 10/89
CHECK/INSP ENGINE 1 FRONT MOUNT THRUST BRACKETS ACCESS PANELS 411 415AL 416AR MECH INSP VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT N72-30-00-MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR			ı wc		10	STRUCTURAL ILLUSTRATION RE		AF	PLICABILITY
411 415AL 416AR MECH INSP VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT N72-30-00-MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR	CHECK	/INSP	ENGINE 1	1 FRONT MOUNT	THRUST BRACKETS				
WECH INSP VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR		ZONES				ACCESS PANELS		ALL	4000
VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT N72-30-00-MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR	411			415AL 41	6AR				
MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR	MECH INSP							ı	IPD ITEM NUMBER
		MOUNT	THRUST BR						
EFFECTIVITY CHECK/INSD ENGINE 1 FRONT MOUNT THRUST PRAC									

		_										
STA	ATION				_							ING CARD NO.
TAI	L NO.	1	_			BL	JEII	VG			72-4	27-01-2
	DATE	-	S	AS			767				AIRI	LINE CARD NO.
	,,,,,,					TAS	K CARI)				
SKILL	WORK AI	REA	REL	ATED TASK			INTERVAL			PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE	2	W-06-	145-01		1c				11212	006	MAY 10/89
TAS		ENG	TNE 2 E		TLE	UDUCT DE	ACKETO	STRUCTURAI	. ILLUSTRATION F	REFERENCE	AIRPLAN	PPLICABILITY E ENGINE
CHECK	(/INSP	ENG	INE Z F	RONI MO	OUNI II	HRUST BF	RACKETS				ALL	4000
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	CONDI											
1	I											

CHECK/INSP

N72-30-00-D

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ENGINE 2 FRONT MOUNT THRUST BRACKETS

72-427-01-2 PAGE 1 OF 1 MAY 10/89

EFFECTIVITY

STATION	
T.T. NO.	
TAIL NO.	
DATE	

WORK AREA



BOEING CARD NO. 72-433-01-1

AIRLINE CARD NO.

PHASE

REVISION REV W-72-401-01-100250 HRS 003sc 016 DEC 22/05 **ENGIN** | **ENGINES** STRUCTURAL ILLUSTRATION REFERENCE

LUBRICATE ENG 1 FAN BLADE PART-SPAN SHROUD ALL NOTE

INTERVAL

APPLICABILITY

ANF ENGINE AIRPLANE

TASK CARD

ZONES ACCESS PANELS

RELATED TASK

411

SKILL

MPD ITEM NUMBER MECH INSP

LUBRICATE THE ENGINE 1 FAN BLADE PART-SPAN SHROUD CONTACT SURFACES.

N72-31-02-6B

ENGINE NOTE:

SB PW4ENG 72-536 (PRATT AND WHITNEY). TASK IS APPLICABLE TO ALL FAN ROTORS ON PW4000 ENGINES CONSISTING OF EITHER ALL NON-HONED SHROUD FAN BLADES (PRE-SERVICE BULLETIN 72-536) OR A MIX OF NON-HONED AND HONED SHROUD FAN BLADES (PRE-

AND POST- SERVICE BULLETIN 72-536).

Equipment

- (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
- Consumable Materials
 - (1) D00059 Lubricant PWA 587 (P06-005)
- C. Access
 - (1) Location Zones

Left Engine 411 422 Right Engine

- D. Procedure
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY CAUTION: RESULT TO THE INNER SURFACE OF THE INLET COWL.

EFFECTIVITY

LUBRICATE

ENG 1 FAN BLADE PART-SPAN SHROUD

N72-31-02-6B

72-433-01-1 PAGE 1 OF 4 DEC 22/05

4

9 8

2

72-433-01-1

AIRLINE CARD NO.

SAS FOEING
767
TASK CARD

MECH INSP

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

- (3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.
- (4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.
- (5) Examine Area F (shroud edges) for damage (Fig. 603).

WARNING: DO NOT PERMIT THE LUBRICANT TO TOUCH YOUR SKIN. IF IT DOES,
WASH YOUR SKIN IMMEDIATELY WITH SOAP AND WATER. THE LUBRICANT
CAN CAUSE INJURY TO YOUR SKIN

- (6) If there is not sufficient lubricant on the hardface surface of the shroud, do the steps that follow.
 - (a) With a brush, apply a layer of lubricant to area B, the hardface surface of the shroud.

NOTE: The liquid-paste Molykote type G-N lubricant is easier to apply, and lubricates a longer time than the spray type Molykote.

- (b) Remove the unwanted lubricant from the outer surfaces of the shroud and the blade airfoil.
- (7) Turn the rotor to put the adjacent two blades at the 12 o'clock position.
- (8) Do this inspection procedure again until you examine all the fan blades.
- (9) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.

EFFECTIVITY

LUBRICATE

ENG 1 FAN BLADE PART-SPAN SHROUD

N72-31-02-6B

72-433-01-1 PAGE 2 OF 4 DEC 22/05

72-433-01-1

AIRLINE CARD NO.

SAS BOEING 767 TASK CARD

MECH INSP (b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5. **EFFECTIVITY** LUBRICATE ENG 1 FAN BLADE PART-SPAN SHROUD

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N72-31-02-6B 72-433-01-1 PAGE 3 OF 4 DEC 22/05

72-433-01-1

AIRLINE CARD NO.

BOEING 767

SAS

TASK CARD 0.250 INCH (6.350mm) 2 (AREA B) (SHROUD CONTACT SHROUD CONTACT EDGE HARDFACE SURFACE) LEADING 1 (AREA C) **EDGE** SHROUD RADIUS (4 LOCATIONS) **BLADE** 4 (AREA F) AIRFOIL SHROUD EDGE 5 (AREA E) UPPER AND LOWER SURFACES OF THE SHROUD 4 (AREA F) SHROUD 0.500 INCH SHROUD EDGE (12.700mm) 6 (AREA D) (FILLET RADIUS) L-B2966 2 (AREA B) HARDFACE SURFACE OF THE SHROUD (AREA A) ENGINES PRE-PHASE III (SHROUD CONTACT EDGE) L-A1061 ENGINES POST-PHASE III 1287 A-ANames of the Fan Blade Shroud Areas Figure 603 **EFFECTIVITY** LUBRICATE ENG 1 FAN BLADE PART-SPAN SHROUD N72-31-02-6B 72-433-01-1 PAGE 4 OF 4 DEC 22/05

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STATION
TAIL NO.
DATE

WORK AREA



BOEING CARD NO. 72-433-01-2

AIRLINE CARD NO.

PHASE

TASK CARD

ENGIN ENGINE 2 W-72-401-01-2 00250 HRS 003SC 016 DEC 22/05

TASK TITLE STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

LUBRICATE ENG 2 FAN BLADE PART-SPAN SHROUD
ALL NOTE

INTERVAL

ZONES ACCESS PANELS

RELATED TASK

421

SKILL

MECH INSP MPD ITEM NUMBER

LUBRICATE THE ENGINE 2 FAN BLADE PART-SPAN SHROUD CONTACT SURFACES.

N72-31-02-6B

ENGINE NOTE:

SB PW4ENG 72-536 (PRATT AND WHITNEY). TASK IS APPLICABLE TO ALL FAN ROTORS ON PW4000 ENGINES CONSISTING OF EITHER ALL NON-HONED SHROUD FAN BLADES (PRE-SERVICE BULLETIN 72-536) OR A MIX OF NON-HONED AND HONED SHROUD FAN BLADES (PRE-

AND POST- SERVICE BULLETIN 72-536).

A. Equipment

- (1) Protective mat Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).
- B. Consumable Materials
 - (1) D00059 Lubricant PWA 587 (P06-005)
- C. Access
 - (1) Location Zones

411 Left Engine 422 Right Engine

- D. Procedure
 - (1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

LUBRICATE ENG 2 FAN BLADE PART-SPAN SHROUD

N72-31-02-6B 72-433-01-2 PAGE 1 OF 4 DEC 22/05

72-433-01-2

AIRLINE CARD NO.

SAS BOEING
767
TASK CARD

MECH INSP

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

- (3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.
- (4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.
- (5) Examine Area F (shroud edges) for damage (Fig. 603).

WARNING: DO NOT PERMIT THE LUBRICANT TO TOUCH YOUR SKIN. IF IT DOES,
WASH YOUR SKIN IMMEDIATELY WITH SOAP AND WATER. THE LUBRICANT
CAN CAUSE INJURY TO YOUR SKIN

- (6) If there is not sufficient lubricant on the hardface surface of the shroud, do the steps that follow.
 - (a) With a brush, apply a layer of lubricant to area B, the hardface surface of the shroud.

NOTE: The liquid-paste Molykote type G-N lubricant is easier to apply, and lubricates a longer time than the spray type Molykote.

- (b) Remove the unwanted lubricant from the outer surfaces of the shroud and the blade airfoil.
- (7) Turn the rotor to put the adjacent two blades at the 12 o'clock position.
- (8) Do this inspection procedure again until you examine all the fan blades.
- (9) If you are done with the fan blade inspections, do the steps that follow:
 - (a) Remove the protective mat from the inlet cowl.

EFFECTIVITY

LUBRICATE

ENG 2 FAN BLADE PART-SPAN SHROUD

N72-31-02-6B

72-433-01-2 PAGE 2 OF 4 DEC 22/05

72-433-01-2

AIRLINE CARD NO.

SAS FOEING
767
TASK CARD

Н	INSP														
				(b))	Remove the DO-	-NOT-OPERATE	tag	from	the	ENG	START	switch	on	
						overhead panel	L, P5.								
	ECTI	VI	ΤΥ				LUBRICATE		ENG 2	FAN	BLAD	DE PAR	T-SPAN	SHR)
							N72-31-02-	6B '	72-433	5- 01-	-2	PAGE	3 OF	4 DI	Ξ

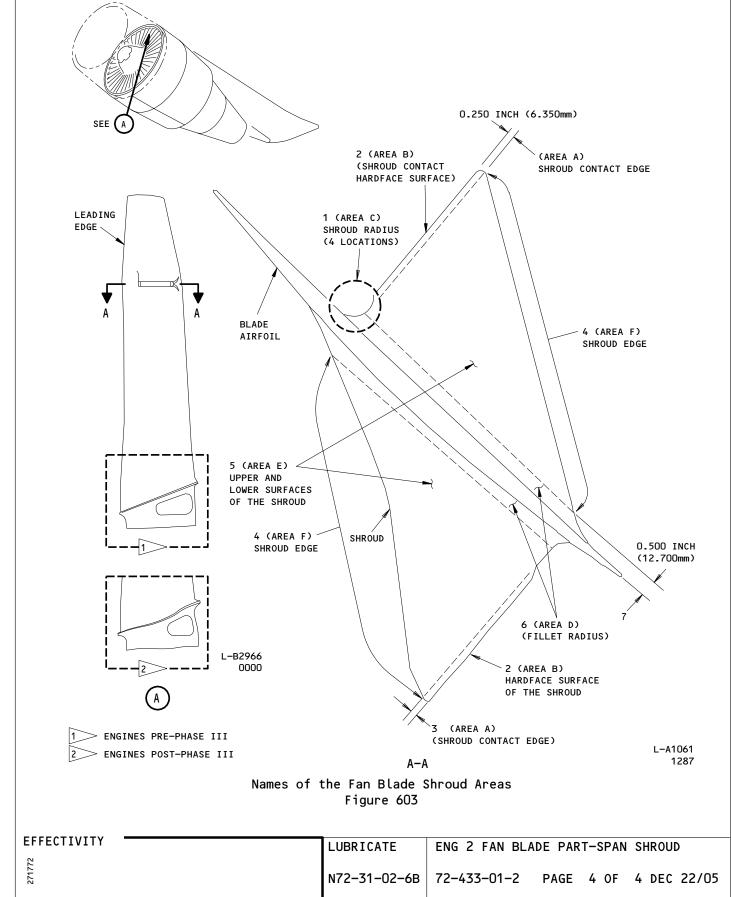
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72-433-01-2

AIRLINE CARD NO.

SAS





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STATION	
TAIL NO.	
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WORK AREA



BOEING CARD NO. 72-434-01-1

AIRLINE CARD NO.

TASK CARD

NOTE

MPD

ALL

N72-35-00-A

PHASE

ZAT	ĸ		TITLE		STRUCTURAL TILLUSTRATION RE	FERENCE	ΔΡ	PI TCARTI TT	TY
ENGIN	ENGINE	1		NOTE			013	NOV 1	0/96
							REV	REVIS	SION

INTERVAL

TASK TITLE STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

CHECK/INSP ENGINE 1 HPC VARIABLE STATOR VANES

ZONES ACCESS PANELS

RELATED TASK

415 416

SKILL

MECH INSP MPD ITEM NUMBER

INSPECT THE ENGINE 1 HIGH PRESSURE COMPRESSOR VARIABLE STATOR VANE UNISON RINGS FOR DAMAGED VANE ARMS AND LOOSE RIVET PINS PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG A72-419.

INTERVAL NOTE: SB PW4ENG A72-419 (PRATT & WHITNEY).

SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION AT THE NEXT A-CHECK (NOT TO EXCEED 500 FLIGHT HOURS), WITH SUBSEQUENT INSPECTIONS AT EVERY 4TH A-CHECK (NOT TO

EXCEED 1600 FLIGHT HOURS).

ENGINE NOTE: SB PW4ENG 72-432 (PRATT & WHITNEY).

APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS

SERVICE BULLETIN OR EQUIVALENT.

EFFECTIVITY

CHECK/INSP

ENGINE 1 HPC VARIABLE STATOR VANES

N72-35-00-A

72-434-01-1 PAGE 1 OF 1 NOV 10/96

STATION
TAIL NO.
DATE

CHECK/INSP

425 426



BOEING CARD NO. 72-434-01-2

AIRLINE CARD NO.

TASK CARD

MPD

WORK AREA RELATED TASK INTERVAL SKILL PHASE REV REVISION 013 NOV 10/96 NOTE ENGIN | ENGINE 2 STRUCTURAL ILLUSTRATION REFERENCE APPLICABILITY AIRPLANE ENGINE

> ALL NOTE

> > MPD ITEM NUMBER

ZONES

ACCESS PANELS

MECH INSP

INSPECT THE ENGINE 2 HIGH PRESSURE COMPRESSOR VARIABLE N72-35-00-A

STATOR VANE UNISON RINGS FOR DAMAGED VANE ARMS AND LOOSE RIVET PINS PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG A72-419.

INTERVAL NOTE: SB PW4ENG A72-419 (PRATT & WHITNEY).

ENGINE 2 HPC VARIABLE STATOR VANES

SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION AT THE NEXT A-CHECK (NOT TO EXCEED 500 FLIGHT HOURS), WITH SUBSEQUENT INSPECTIONS AT EVERY 4TH A-CHECK (NOT TO

EXCEED 1600 FLIGHT HOURS).

ENGINE NOTE: SB PW4ENG 72-432 (PRATT & WHITNEY).

> APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS

SERVICE BULLETIN OR EQUIVALENT.

EFFECTIVITY

CHECK/INSP

ENGINE 2 HPC VARIABLE STATOR VANES

N72-35-00-A

72-434-01-2 PAGE 1 OF 1 NOV 10/96

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	STATI	ON								BOE	ING CARD NO.	
TAIL NO.			10	AS BOEING					72-435-01-1			
	DAT	E		3	AS &	76	57			, AZK	THE OMO	
						TASK	CARD					
SKIL	L	WORK ARE	A	REI	RELATED TASK INTERVAL			PHASE	MPD REV	TASK CARD REVISION		
ENG	IN	ENGINE	1			NOTE				013	NOV 10/96	
TASK CHECK/INSP ENGINE 1		NE 1 I	TITLE HPC ROTOR B	ROTOR BLADE LOCKS			FERENCE	AIRPLAN	PLICABILITY E ENGINE			
										ALL	NOTE	
		ZONES						ACCESS PANELS				
415	5 4	16										
MECH	INSP									ı	MPD ITEM NUMBER	
						RESSURE COMP OIL IMPACT D		ROTOR BLADE DUE TO LOCK		N72-3	5-00-B	

INSPECT THE ENGINE 1 HIGH PRESSURE COMPRESSOR ROTOR BLADE LOCKS FOR FRACTURE AND AIRFOIL IMPACT DAMAGE DUE TO LOCK MATERIAL LIBERATION, AND APPLY ROTOR BLADE LOCK SEALANT / ADHESIVE AS NECESSARY, PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-445.

INTERVAL NOTE: SB PW4ENG 72-445 (PRATT & WHITNEY). SERVICE

BULLETIN RECOMMENDS INITIAL INSPECTION AND SEALANT / ADHESIVE INSTALLATION WITHIN 500 FLIGHT HOURS IF

LOCTITE 640 WAS INCORPORATED), WITH SUBSEQUENT BLADE LOCK INSPECTIONS EVERY

300 FLIGHT CYCLES.

ENGINE NOTE: SB PW4ENG 72-373 (PRATT & WHITNEY).

APPLICABLE TO PRATT & WHITNEY PW4000 SERIES

ENGINES THAT HAVE NOT INCORPORATED THIS

SERVICE BULLETIN OR EQUIVALENT.

CHECK/INSP ENGINE 1 HPC ROTOR BLADE LOCKS

N72-35-00-B 72-435-01-1 PAGE 1 OF 1 NOV 10/96

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	L NO.		SAS BOEING 767 TASK CARD							
SKILL	WORK ARE	ĒΑ	RELATED TASK	INTERVAL		PHASE				
ENGIN	ENGINE	2		NOTE						
TASK		TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE					
CHECK/INSP		ENG:	INE 2 HPC ROTOR B							

72-435-01-2

AIRLINE CARD NO.

MPD

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APPLICABILITY
AIRPLANE ENGINE

MPD ITEM NUMBER

013 | NOV 10/96

TASK CARD

REVISION

ALL NOTE

ACCESS PANELS

425 426

ZONES

MECH INSP

INSPECT THE ENGINE 2 HIGH PRESSURE COMPRESSOR ROTOR BLADE

N72-35-00-B
LOCKS FOR FRACTURE AND AIRFOIL IMPACT DAMAGE DUE TO LOCK

LOCKS FOR FRACTURE AND AIRFOIL IMPACT DAMAGE DUE TO LOCK MATERIAL LIBERATION, AND APPLY ROTOR BLADE LOCK SEALANT / ADHESIVE AS NECESSARY, PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-445.

INTERVAL NOTE: SB PW4ENG 72-445 (PRATT & WHITNEY). SERVICE

BULLETIN RECOMMENDS INITIAL INSPECTION AND SEALANT / ADHESIVE INSTALLATION WITHIN 500 FLIGHT HOURS IF

LOCTITE 640 WAS INCORPORATED), WITH SUBSEQUENT BLADE LOCK INSPECTIONS EVERY

300 FLIGHT CYCLES.

ENGINE NOTE: SB PW4ENG 72-373 (PRATT & WHITNEY).

APPLICABLE TO PRATT & WHITNEY PW4000 SERIES

ENGINES THAT HAVE NOT INCORPORATED THIS

SERVICE BULLETIN OR EQUIVALENT.

EFFECTIVITY

CHECK/INSP

ENGINE 2 HPC ROTOR BLADE LOCKS

N72-35-00-B

72-435-01-2 PAGE 1 OF 1 NOV 10/96

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STATION	
TAIL NO.	
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BOEING CARD NO. 72-436-01-1

AIRLINE CARD NO.

DATE		U	710	•	01						
					TASK	CARD					
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ENGIN	ENGINE	1			NOTE				013	NOV	10/96
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									AIRPLANE		ENGINE
BORES	COPE	ENGI	NE 1 H	HPT STAGE	PT STAGE 1 BLADES						
									ALL		NOTE
	ZONES						ACCESS PANELS				
411				417AL	418AR						

MECH INSP

MPD ITEM NUMBER

BORESCOPE CHECK THE ENGINE 1 HIGH PRESSURE TURBINE STAGE 1 BLADES TO INSPECT FOR INDICATIONS OF AIRFOIL CONCAVE—SIDE BULGING PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-422.

N72-00-00-E

INTERVAL NOTE: SB PW4ENG 72-422 (PRATT & WHITNEY). SERVICE

BULLETIN RECOMMENDS INITIAL INSPECTION WITHIN 1000 FLIGHT CYCLES WITH SUBSEQUENT INSPECTIONS EVERY 250 FLIGHT CYCLES (125 FLIGHT CYCLES IF BLADE TOTAL CYCLES EXCEEDS 1900). CYCLES MAY BE ROUNDED TO THE NEAREST

A-CHECK.

ENGINE NOTE: SB PW4ENG 72-466 (PRATT & WHITNEY).

APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS

SERVICE BULLETIN OR EQUIVALENT.

EFFECTIVITY

BORESCOPE

ENGINE 1 HPT STAGE 1 BLADES

N72-00-00-E

72-436-01-1 PAGE 1 OF 1 NOV 10/96

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T	AIL N	10.	
	DATE		



BOEING CARD NO. 72-436-01-2

AIRLINE CARD NO.

DATE		•	. •	•						
				TASK	CARD					
SKILL	WORK AREA RE		RELATED TASK	SK INTERVAL			PHASE	MPD REV	1	SK CARD EVISION
ENGIN	ENGINE	2	NOTE				013	NOV	10/96	
TASK		TITLE		STRUCTURAL ILLUSTRATION RE	FERENCE	APPLICABILITY				
		IE 2 HPT STAGE 1	1 BLADES				AIRPLAN	E	ENGINE	
								ALL		NOTE
	ZONES					ACCESS PANELS				
421			427AL 42	28AR						

MECH INSP

MPD ITEM NUMBER

BORESCOPE CHECK THE ENGINE 2 HIGH PRESSURE TURBINE STAGE 1 BLADES TO INSPECT FOR INDICATIONS OF AIRFOIL CONCAVE-SIDE BULGING PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-422.

N72-00-00-E

INTERVAL NOTE: SB PW4ENG 72-422 (PRATT & WHITNEY). SERVICE

BULLETIN RECOMMENDS INITIAL INSPECTION WITHIN 1000 FLIGHT CYCLES WITH SUBSEQUENT INSPECTIONS EVERY 250 FLIGHT CYCLES (125)

FLIGHT CYCLES IF BLADE TOTAL CYCLES EXCEEDS 1900). CYCLES MAY BE ROUNDED TO THE NEAREST

A-CHECK.

ENGINE NOTE: SB PW4ENG 72-466 (PRATT & WHITNEY).

APPLICABLE TO PRATT & WHITNEY PW4000 SERIES

ENGINES THAT HAVE NOT INCORPORATED THIS

SERVICE BULLETIN OR EQUIVALENT.

EFFECTIVITY

BORESCOPE

ENGINE 2 HPT STAGE 1 BLADES

N72-00-00-E

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